# The Builder.

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## ILLUSTRATIONS.


The Museum of Comparative Sculpture in the Palace of the Trocadéro, Paris (Double-page Engraving) ..... 114
Lodge, Mount Park Estate, Harrow-on-the-Hill.—Messrs. Higgs & Rudkin, Architects ..... 116
Work of the Royal National Lifeboat Institution: Torquay, South Devon; St. Anne's-on-the-Sea, Lancashire; Fleetwood, Lancashire; Hastings, Sussex; Newcastle (Dundrum Bay), Co. Down; Hornsea, Yorkshire (Double-page Engraving).—Mr. Charles H. Cooke, F.S.A., Architect ..... 118, 119
All Saints' District Church, Ipswich.—Mr. J. M. Brooks, Architect ..... 121


## CONTENTS.


The Cholera and the Local Government Board ..... 101
"The History of Freemasonry" ..... 102
Nottingham Municipal Offices Competition ..... 104
Builders' Machinery at the Royal Agricultural Society's Show, York ..... 106
Half a Century of Professional Journalism ..... 107
Croydon ..... 108
Some Points in Town Government ..... 108
The New Suez Canal ..... 110
The Abatement of Nuisances: Sanitary Authorities ..... 110
Something about Madagascar and its Art ..... 110
On Recent Improvements in Artificial Lighting, and their Bearing on the Purity of Air in Rooms ..... 111
Discovery of Frescoes at Rome ..... 112
Royal National Lifeboat Institution: Lifeboat Houses ..... 125
The Museum of Comparative Sculpture in the Trocadéro, Paris.. 125
Villa, Mount Park Estate, Harrow ..... 125
All Saints' District Church, Ipswich ..... 125
Royal Academy: Cousins Annuitants ..... 125
Building Trades' Exhibition in Manchester ..... 125
Non-Completion of Contract within Specified Time: Direct Spanish Telegraph Company v. Shepherd ..... 126
Bristol Master-Builders' Association: The Annual Outing ..... 126
The Paris Industrial Exhibition of 1884 ..... 126
The Berlin Museum ..... 127
Foreign Notes ..... 127
Foreign Competitions ..... 127
Venice ..... 127
The Old City of London School ..... 128
Building over the Dead ..... 128
Dwellings in the Suburbs ..... 128
The Law Courts ..... 128
Churches in Scotland ..... 128
Asbestos ..... 129
Building Patent Record ..... 129
Important Building Case: Asphalte not Combustible.. ..... 130
Commissions: Hearne v. Keeling ..... 130
Wooden Projections under the Building Act: T. W. Willis v. J. Davis ..... 130
St. Bede's (R. C.) College, Manchester ..... 130
Land Tax ..... 130
Fireproof Floors ..... 130
The Underground Railways ..... 130
Maddison v. Helston Railway Company ..... 130
Sub-Contracts ..... 130
Proposed Liverpool Cathedral ..... 130
Builders' Benevolent Institution ..... 131
Tenders for Board Schools ..... 131
Cement ..... 131
Provincial News ..... 131
Church-building News ..... 131
Books: Economy of Coal in House Fires (Churchill); The Hygiene of Armies in the Field (Wyman & Sons); Variorum.. 131
Miscellanea ..... 132


### *The Cholera and the Local Government Board.*

UNREASONABLE alarm is as much to be deprecated as stolid indifference to danger. And it is not as alarmists, but as those who would prevent danger, that we call attention to the menacing movement westward of the cholera. Among the evils of war, not the least is the uncertainty that follows any actual warfare as to whither its influences may extend, and what may be the next place in which they may unexpectedly appear. Now those who have gone through the Egyptian campaign, and who have paid dearly for the knowledge, thus acquired, that there is something in the life of the soldier not to be paid for by a medal or a decoration, and not to be read of in the boastful language of bulletins or military reports, are well aware that Egypt, as it was left by our forces after Tel-el-Kebir, was in a condition to invite plague and pestilence, if not famine. The bodies of men and of beasts, left to rot on the ground, or flung into the "Sweet Water Canal," poisoned earth, and air, and water. The sanitary notions and regulations of the Fellaheen are of a primitive order; but, such as they are, they are better than none. The effect of the war has been to replace them with none. The absence of that noble appreciation on the part of a general which considers one life lost by preventible malady a heavier responsibility than five lives lost in a necessary and hotly-contested engagement, is, perhaps, not sufficiently rare to be a matter of remark. But we may at least be allowed to say that the death rolls sent us from Damietta and other Egyptian towns should lead to the inquiry how far the whole of our troops now in Egypt are quartered in spots as far removed as possible from the influence of malaria, — whether natural or arising from negligence, —and notably and urgently how far they are provided with distilled water for drinking.

The importance of this precaution is cardinal. The use of distilled water, where the natural sources of supply are as polluted as is common in the East, means simply the difference between life and death. There are plenty of excellent condensers to be had at a moment's notice. Suffield's condenser, at the price of 74*l*., delivers 6,000 gallons of pure cold water daily. Kirkaldy's Condenser made 90 gallons of water per hour on board the transport *Adjutant*, in the Egyptian expedition, to the great satisfaction of all on board. Fraser's "Acme" Condenser has the advantage of the introduction of circular tubes. Normandy's Improved Patent Distilling Machinery has been tested to produce 6,270 gallons, or 28 tons, of pure cold water in nineteen hours, with 1½ ton of coal, being equal to 4,100 gallons, or 18·3 tons, of water per ton of coal. With facts like these attested by unexceptionable witnesses, the responsibility of allowing the loss of life by fever or cholera spread by infected water is of the most serious magnitude.

Nor should our vigilance be confined to the Army, whether abroad or at home. No safety is attainable in the case of the outbreak of any infectious disease, unless the people at large will concur in the simple precautions necessary for the defence of their homes, their wives, and their little ones, to say nothing of themselves, from an invisible but deadly enemy. In this respect we have to call attention to the memorandum of precautions against the infection of cholera prepared by the Medical Officer of the Local Government Board for tranmission to each sanitary authority throughout the kingdom. Those of us who can remember the panic excited by the first outbreak of the cholera in 1831, to say nothing of the three subsequent visitations in 1849, 1853, and 1866, will take some comfort in the view, that we have made a marked progress in our sanitary practice,—at least, since the earliest of these dates. There is a calm scientific certitude in the tone of this document which stamps it with great dignity, and which should inspire the reader with full confidence in the recommendations that it contains. At the same time, it should impose upon all the necessity of attending to those precautions. Former experience of cholera in England justifies the belief, Dr. Buchanan says, that the presence of imported cases of cholera at various spots in the country will not be capable of causing much injury to the population, if proper sanitary measures are adopted, cholera in England is so little contagious, in the sense in which small-pox and scarlet fever are contagious, that there is, with proper care, little risk of the disease spreading to those who nurse the patients. On the other hand, the danger of pollution to water, and possibly to air, from any discharge proceeding from the patient, is exceedingly great. And not only is there this danger of direct infection. The outbreak of cholera seems to be accompanied by climatic or telluric changes that depress the resisting powers of man. Thus, even without any direct cholera poisoning, the old sources of mischief, —neglected sewers, cesspools, and the like,— awaken to a new activity at such times; and cholera, or something like it, may assume an epidemic form, not as the result of infection from abroad, but as that of the abnormal activity; of the spores or germs of disease that are almost everywhere ready to be nursed into activity; and owing at the same time to the depressed condition of those who, under ordinary circumstances, would risk little from infection.

We had rather refer to the warnings contained in the fifth and sixth paragraph of the memorandum of the Local Government Board than either reproduce them or abstract them. They demand attentive consideration. The case is one in which each man has a double duty to perform: that proper to himself, and his own household; and that due to his position and influence in society. There is no knowing what terrible mischief may be produced by a single case of neglect. It is easier to keep out than to turn out an enemy so formidable as disease arising from neglected impurity. Nor is the duty less incumbent on every householder, or each head of a family, to watch over the safety of his home, than it is on local boards, medical officers, architects, engineers, even clergymen, on all those men who, knowing what danger is, know also how alone it is to be averted.

Dr. Buchanan wisely adds that no pains taken and costs incurred in the way of sanitary precaution will be wasted. It may be difficult to say, "By such and such steps you have kept the cholera from your neighbourhood. If you had not taken these, you would have suffered." One is not, perhaps, justified in saying as much as that with certitude. But there have been many cases that look very like it. By all means let us give ourselves the benefit of the doubt; and not seek to test the efficacy of precautions by neglecting them in order to see what will happen then. We have many domestic enemies, little, if any less, destructive than cholera. That form of enteric fever which seems to select the noblest and the most lovely as its victims, is one of them. Any precaution required against imported cholera is none the less requisite against autogenic fever. Measures of prevention are at once cheaper andmo re effective than can be any measure of cure.

It is certain that the alarm of personal danger, whether to one's self or to those most dear, has an effect on the mind that is special and powerful. It seems to waken all the faculties at once. Such wakening, too often, is too late. That it may not be so in the present case, we think it is the duty of all those whose voices are loud enough to be heard, and authoritative enough to be respected, by their neighbours, to uplift them now. We do not say that there is any immediate danger. The course taken by the epidemic, at the present moment, seems to be southward rather than westward. But it is idle, and worse than idle, to shut our eyes to the fact that danger may be upon us at any moment. To a certain extent danger is always present. Danger from disturbances in the digestive organs is never altogether absent, especially in hot weather. In hot weather, too, every germ of mischief has an abnormal activity. Let us urge all to set their houses in order, hoping that the enemy will not come, but doing our best to render his invasion as ineffective as possible if it actually takes place.

## "THE HISTORY OF FREEMASONRY."*

CHAPTER VII., "The Statutes relating to the Freemasons." "The only evidence we possess of the existence of Freemasonry in England before the initiation or admission of Elias Ashmole in 1646, is scattered in the 'Old Charges' or 'Constitutions,' the records of the building trades, and the statutes of the realm." The reason ascribed by Mr. Gould for this chapter is given in a closing paragraph, and it is a very modest conclusion to a very long and laborious study of this branch of the subject. He writes as follows:—"In bringing to a close my review of the early statutes, whilst conscious that I have unfolded very little that may tend to strengthen the opinion entertained of the high antiquity of Freemasonry, I may claim, at least, to have dissipated some few errors, and thereby to have assisted, however, slightly and imperfectly, in placing the history of the Masonic craft on a rational basis." We make the following extracts to show the matter under consideration:—"The struggle between the rising craft guilds of London and the body of the citizens, has been carefully narrated by Brentano, 'History and Development of Guilds,' p. 53, by whom the triumph of the former over the latter is stated to have been fully achieved in the reign of Edward III. A large majority of the trades got their ordinances enrolled by the mayor and aldermen. At the same time they adopted a particular livery, and were hence called Livery Companies. Edward III. became a member of the Linen-armourers,—and his example found numerous imitators amongst his successors and the nobility of the kingdom." "The erudition of the times, and the tone of manners which prevailed toward the close of the fifteenth century, made it desirable and necessary for great lords to supply the defection in their villeins and land tenants by other expedients. It accordingly had become the custom to *retain* persons in their service to be at call when their lords' affairs needed their support;—they used to dress them in liveries and hats of a particular make or colour;—they supported each other in all quarrels and crimes, and Fraternities were formed;—these confederacies became a terror to the Government, and were the occasion of the 'Statutes of Liveries,' passed in this and the following reigns," as in 1377 and 1399, which were confirmed 1405-6, and again 1411. During "the visitation of the 'black death,' of the three or four millions who then formed the population of England, more than one-half were swept away. The whole organisation of labour was thrown out of gear. There was a great rise of wages,—the price of labour was fixed by the Parliament of 1350." Foreign conquest and Scottish incursions assisted the depopulation; evasions of the statutes became numerous, so much so that "though in 1340 there were sufficient of proper men in each county to execute every office, owing to the pestilence and wars (up to 1421) there were not even a sufficiency of responsible persons to act as sheriffs, coroners, and escheators."

Mr. Gould prints, and considers "the Ordinances of Labourers, 1349," "the Statute of Labourers, 1350," and "Regulations for the Trade of Masons, 1356, 'passed' at a congregation of the mayor and aldermen of the city of London"; the "two laws enacted against combinations, congregations, and chapters of workmen, 1360 and 1425"; and the statute of 1427, which gives a clue, according to Kloss, "why the Masons were to appear at the General Assembly at a certain place once a year, to hear the rates of wages," &c., as stated in two "Charges" or "Constitutions," which charges and constitutions our author thinks may by some persons be held to refer either partly or wholly to *country Masons*; but an eminent authority who believes the *artificers* whom the 25th Edward III., and later statutes, "expects to flee from one country to another," to have been workmen employed on the country manors of lords. "Each country manor," says Brentano, "had in the Middle Ages its own artificers, who supplied the common wants of their lords, whilst the latter resorted only for their more refined wants to the craftsmen of the towns. "But were these 'country masons' of the early part of the fifteenth century, either by education or intelligence, capable of comprehending the Halliwell poem, had it been rehearsed to them?" inquires our author. Why not, say we, if they were likely to understand the MS. charges? "In 1437 the king and Parliament applied themselves still more vigorously to mitigate the growing abuses of the craft-guilds,—all letters patent and charters were required to be exhibited,"—and "this statute of 1360 is remarkable as showing the co-existence of the two masterships,—that of skill and capital; thus, the *chief masters* of carpenters and masons are to receive 4d. a day, and the others 3d. or 2d., according as they be worth; but every mason and carpenter, 'of whatever condition he be,' is to be compelled by 'his *master whom he serves*,' to do every work that pertains to him." "Where," continues Mr. Ludlow, "as it seems to me, the *guild masters* are designated by the former expression, and the *capital masters* by the latter." But if the term *master mason* or *master carpenter* be understood by the former, and the *journeyman* by the latter, would they not be equally applicable?—and the framers of the statute may even have discovered the distinction between the "free mason" and "free carpenter" of the towns, and the "mason" or "carpenter" of the villages and hamlets above referred to. Even in the petition of 1515, the free masons and rough masons, carpenters, &c., in London, are referred to in classes of trades. "The citizens and freemen of London and Norwich may take, have, and retain apprentices there, in such manner and form as they have previously done." The 11 King Henry VII., 1495, deals with the evils complained of in the preamble of the law of 1487, and speaks of "gevyng and receyvyng of *lyverees*, *signees*, and *tokens*, unlaufully." "These *signs* and *tokens* have been regarded as *signs* of recognition, and *grips* of salutation!" "The Statute of Apprentices, 1562-3, though requiring, in very unequivocal words, a seven-years' apprenticeship in all trades then followed in England, wheresoever they should be carried on, has been held to extend only to cities and market towns, and that a person may exercise as many trades as he pleases in a country village, although he has not served a seven-years' apprenticeship to each; also that a man who had been duly apprenticed, might go anywhere, and was not compelled to practise his trade only where he happened to have been apprenticed." "This statute, in the thirtieth clause, enumerates many varieties or branches of a single trade; yet, although in previous statutes the term *Freemason* occurs, a solitary definition, *rough mason*, represented the class either of stone workers or cutters, to whom apprentices could be bound. The omission is curious, and perhaps significant"; or could not the word have been omitted by accident?

Chap. VIII., "Early British Freemasonry, Scotland." Under this heading is collected for the first time a *resumé* of the information derived from personal inspections of the records of the first Lodges in Scotland, and from the published histories of some of them by reliable writers. For the benefit of those unacquainted with Masonic history, the names are here given with the numbers as they now stand in the list of Lodges:—Mother Kilwinning, 0; Lodge of Edinburgh, 1; Canongate Kilwinning, 2; Scoon and Perth, 3; Glasgow St. John, &c., 3 *bis*; Canongate and Leith, &c., 5; Old Kilwinning St. John, 6; Hamilton Kilwinning, 7; Journeymen, Edinburgh, 8; Dunblane, 9; Torpichen Kilwinning, 13; Peebles Kilwinning, 24; Aberdeen, 34; Ancient Lodge, Dundee, 49; St. Andrew, Banff, 52; St. John, Kilwinning, Haddington, 57; St. John, Kelso, 58; St. Ninian, Brechin, 66; and the extinct Lodges of Atcheson Haven and Haughfoot, with the Lodge of Melrose yet remaining independent. "The oldest Lodges in Scotland possess registers of members and meetings, as well as particulars of their laws and customs, ranging backward nearly 300 years. Many of these bodies were the founders of the Grand Lodge in 1736."—"Not the slightest vestige of authentic evidence has yet been adduced in support of the legends in regard to the time and place of the institution of the first Scottish Masonic Lodge." While the southern Lodges "hold the fraternity to have been organised at York in the time of Athelstan, A.D. 926, Scottish Freemasons are content to hail their descent from the builders of the abbeys of Holyrood, Kelso, Melrose, and Kilwinning, the cathedral at Glasgow," &c. But they are not agreed as to which is the earliest; they rank simply according to the antiquity of the records,—and Melrose still stands aloof! By the "Schaw Statute of 1599," the Lodges then ranked as Edinburgh, Kilwinning, and Stirling, Kilwinning being specially noticed as the "heid and secund Ludge of Scotland."

After alluding to the theories which connect the Kilwinning Lodge with the (modern) degrees of "Masonic Knights Templars" and of the "Royal Order of Scotland," Lyon emphatically declares that the Lodge was never more nor less than a society of architects and artisans incorporated for the regulation of the business of the building trade, and the relief of indigent brethren, until the development early in the eighteenth century, of *speculative masonry*; "so imperceptibly," he adds, "has the purely operative character merged into the condition of a purely speculative one, that the precise data of such change cannot with any certainty be decided upon." "In this opinion I concur," writes Mr. Gould, "though for *speculative* we should read *Grand Lodge Masonry*." While, quoting from the minutes of the Lodge of Edinburgh he states that the first admission of *speculative masons* was in 1600. "I use the word *speculative* as an equivalent for *non-operative*." This is a useful memorandum of Mr. Gould's, and we may probably see it reproduced with other references by him in a succeeding volume, when he writes a chapter upon the connexion between the operative masons of old and the present Freemasons. As regards the English Lodges, Ashmole and Dr. Plot both prove that non-operatives were admitted in the seventeenth century, it being the practice of all trade guilds from an early period. To many readers the fact will be new that in Scotland in the seventeenth century the members of masons' lodges were not exclusively operatives, and the admission of members by a member of a Lodge, is noticed at least three times. The "United Incorporation of Mary's Chapel" included wrights and masons (not masons and wrights!), and it therefore appears that there existed "two separate and distinct bodies" at the same time; a Lodge of Edinburgh "at least before 1598," is referred to in "the Schaw statutes, 1599, as *the first and principal Lodge in Scotland*." This circumstance does not appear to be particularly noticed by Mr. Gould; but he states that "it is argued that the prescription of the essay, as well as the final examination and decision, rested with the 'Incorporation of Mary's Chapel'" above noticed. He does, however, concur in the view that "in the seventeenth century the power of raising fellow-crafts to the *position or status of masters in operative masonry* was invested in the Incorporations and not in the Lodges, the latter *simply certifying* that the candidates for such positions were duly passed as competent fellow-crafts." A very strong expression of a consensus! A "seal of cause," 1600, at Glasgow, was required to separate the wrights from the masons as an incorporation.

The *St. Clair Charters*, the originals, one probably of 1601-2, the other 1628, are entirely silent as to the Grand Mastership of the Craft being hereditary in the St. Clairs of Roslin, "yet that distinction has been claimed for this family,—it is simply untrue." "The junior document refers to a destructive fire in Roslin Castle, a convenient circumstance, fire or other visitation of Providence is an old method of seeking to turn the edge of criticism." "The laws of December 28, 1598, promulgated by William Schaw, master of work to King James VI., are sufficient to prove this. These laws were compiled in order that they might be sent *to all the Lodges in Scotland*, having received the unanimous sanction of the masters *convened* at Edinburgh, and to which William Schaw, the master of work (by royal appointment) and general warden, had duly subscribed his name, and enjoined their due observance by the Scottish craft. Of scarcely less importance are the laws of the following year, signed by the same official, having particular reference to the old Lodges at Edinburgh and Kilwinning, the clauses of which are most extraordinary in character, considering the period of their promulgation, and afford an insight into the usages and customs of the craft, superior to any other documents which have come down to us from remote times." "An authentic copy" was to be made and "sent to all the Lodges in Scotland, the names and number of which unfortunately the record does not disclose." Is not this as sufficient an example of a head lodge or school or

* The History of Freemasonry: its Antiquities, Symbols, Constitutions, Customs, &c. Derived from Official Sources. By Robert Freke Gould, Barrister-at-law, Past Senior Grand Deacon of England. Vol. ii., 4to., pp. 253 to 504. London: Thos. C. Jack, 45, Ludgate-hill.
See *Builder*, p. 37, *ante*.

consensus as can be expected to be found? Now, from whence did these twenty-two rules emanate? Were they framed in Scotland, and taken up by the English lodges, or were they first framed in England, as has been before suggested? "These regulations of 1599," writes Mr. Gould, "are in many respects most singular,—as applicable to a particular Lodge, and containing an authoritative judgment respecting the relative precedency of *the three head Lodges in Scotland: they are absolutely unique.*" There was a "convention" of Lodges called in January, 1600, at St. Andrew's, apparently by order of the warden-general,—the Lodges of Edinburgh, St. Andrew's, Dundee, and Perth,"—doubtless attended. Are not these additional proofs of a consensus? "The Lodge of Atcheson-Haven, held successively at Musselburgh, Prestonpans, Morrison's Haven, Atcheson's Haven, and Pinkie, and in conjunction with 'the Incorporation,' regulated the affairs of the masons' trade within those boundaries until the middle of the last century. In its charter, granted in 1814 by the Grand Lodge of Scotland, it was certified that the Lodge had been in existence from the year 1555." It had a version of the "old charges" of the year 1616, probably a copy of a much older one being replaced in that year.

Another useful memorandum from the Lodge of Edinburgh is that on December 27, 1636, the term *frie mesones* is used, and this entry Lyons declares "to be the earliest instance yet discovered of the term being, in Scotland, applied to designate members of the mason craft, and considers that it is used as an abbreviation of the term *freemen masons*. Both Mr. Gould and Mr. Hughan agree in this conclusion, though the former thinks the earliest use may be virtually traced back to 1581, as in Melrose version of the 'Old Charges,' one that does not annul the conclusion which was promulgated in 1862, that in England it was derived from *freestone mason*. In the Lodge at Kelso, the prefix *free* is not used until 1741, when the Lodge was called "The Society of Free and Accepted Masons."

The term "Lodge" is considered to be found first used in 1491 ("the masownys of the loge" [of the kirk work, as I read it] June 27, 1483, is given p. 122, which must be an earlier record, if a clerical error has not occurred), the mention of its use later need not be noticed. It will be remembered that in England it occurs about a century earlier, as seen in the Fabrick Rolls of York Minster, and that at both periods "it was understood to mean the covered shed in which the (free) masons assembled to fashion the stones, to which only the regular craft had access, *cowans* being especially excluded." "Booths to work in" are mentioned 1600.

Only one instance acknowledging the lawfulness of a female occupying the position of *dame* in place of a "master mason," was traced by Lyon, but Mr. Gould finds an entry of April 17, 1683, in the Lodge of Edinburgh, and writes: "It is not a little curious to note how anxious the members were to guard against the potential rivalry of masonic 'dames,' thus proving that widows of Freemasons were not permitted to join the Lodge, although, to a certain extent, they were made free of the trade." This point of "admission" was adverted to in the previous review.

"The *degree* of Master-Mason is, for the first time, alluded to in the Kilwinning records of 1736 (June 24), when a by-law was passed that such as are found to be qualified as apprentices and fellow-crafts 'shall be raised to the dignity of a master, gratis.' The laws of the Lodge of Aberdeen, 1670, distinctly show that the *title* or *grade* of master-mason was then unaccompanied by any secret mode of reception,—it specified in those days a duly-passed apprentice, who was competent to undertake work on his own account, and a gentleman (or geomatic) mason, upon whom the title was bestowed in an honorary or complimentary sense." Only two classes are noted in the rules of 1670, viz., master-masons and apprentices, the former being sometimes described as fellow-crafts, *i.e.*, those who had served their lawful time as apprentices. A "warden" was first appointed 1759, in the Lodge of Haughfort, now extinct. From 1702 this Lodge "had really a greater claim to be deemed a 'speculative' than an 'operative' Lodge. In 1424 each trade, by the 'Laws of the Burghs,' *with the officers of the town*, was empowered to choose a 'dekyn or maisterman,' to assay and govern the works of that craft; but in 1426 their powers were restricted to examining every fifteen days that the workmen are cunning, and their work sufficient." In 1427 the privilege of electing deacons was withdrawn, that they might no longer "hold meetings which are often conspiracies," and the government of all crafts was entrusted to *wardens*, who were to be appointed by the council of the Burgh, or the Baron in landward districts, with other powers.

The Melrose Lodge,—the independent Lodge,—whose records date in almost unbroken succession from the year 1674 down to the present time, by its earliest minute appoints seven years as the term of apprenticeship; 8*l.* Scots to be paid for meat and drink, and 40s. Scots "for the use of the box by and allow ym sufficient gloves: when made frie mason, he must pay 4*l.* Scots, to 'be stowet at the pleasour of the Lodge'; apprentices and fellow-crafts to be received only on St. John's day,"—records of a custom long past.

In commenting upon the history of the masons of Aberdeen, our author is greatly assisted by the publication called "Extracts from the Burgh Records," comprehending the proceedings of the Council and of the Baillie and Guild Courts from 1398, being most valuable accumulations of historical importance. These were published by the Spalding Club, and by inference it may be presumed that other towns in both countries might supply similar useful and important information. In this instance I do not go with the author that this "lodge of the kirk work" is necessarily the Masons' Lodge of Aberdeen, for the actual records of the Masons' Lodge only date from 1670. An edition of its rules, dated 1670, was printed either in 1680 or 1682, but no copy has yet been traced; the representatives of former members are urgently requested to examine all books and old bundles of paper in their possession in the hope of recovering one of these copies. These "Burgh Records" state that "on Feb. 1, 1484, it was ordered that 'craftsmen' bear their 'tokens' on their breasts on Candlemas Day; and on Jan. 23, 1496, that every craft have its standard. The latter was carried when any procession took place. On May 22, 1531, it was "ordained that the craftsmen in their best array keep and 'decoir' the procession, every craft with their own banner with the arms of the craft thereon; last of all, nearest the Sacrament, passes all hammermen,—that is to say, smythis, wrichtis, masonis, cuparis, sclateris, goldsmythis, and armouraris." The "History of the Blue Blanket, or Craftsmen's Banner,"—written on very doubtful authority,—was published at Edinburgh in 1832; probably our author may have something more to tell us on this matter. On St. John's day, 1745, in the Melrose Lodge, it was proposed "that all the members do attend the Grand Master to walk in procession from their meeting to their general place of rendezvous, with clean aprons and gloves. . . . The members continue to keep the festival of St. John the Evangelist, as did their ancient forefathers, and proceed in procession by torchlight through Melrose to the ruins of the abbey, which they illuminate with coloured fire, and afterwards dine together." Mr. Gould regrets that this Lodge should have a "continued objection to accepting a place and number on the roll of the Grand Lodge of Scotland." As an expression of opinion of an outsider, it may be asked, Why should it agree to be swamped in the number of *modern lodges* under the Grand Lodge system?

In the laws and statutes of 1670 of the Lodge of Aberdeen, "Each apprentice was required to pay four *rix dollars* at his admission and to present every member of the Lodge with a linen apron and a pair of gloves, though if his means were insufficient to '*clothe the Lodge*,' a money payment was substituted for one in kind, and two additional dollars with a dinner and some wine sufficed for his contribution, exclusive of one mark piece for his mason mark and another to the convener of the Lodge. A dinner and a pint of wine also commemorated his attainment of the fellowship." "All apprentices and fellow crafts were required to pay *twelve shillings Scots* to the master mason." A pretty penalty this for an apprentice operative, the Lodge in 1670, containing more than fifty members! If the difference of money has been observed by Mr. Gould, we could have wished for some explanation of the employment of "rix dollars," which are not exactly Scottish money, yet the national money is named later. Has this any connexion with any influence from foreign masons working in Scotland?

The Schaw statutes of 1599 provide for an *annual test* of apprentices and craftsmen with regard to their skill as masons. Regular essay masters were appointed at Kilwinning and Edinburgh, whose duty it was to be present at the performance of the task, "and see that the candidate actually did the work as settled on by the house." At the Aberdeen Lodge the setting and execution of the "essays" or "masterpieces" as necessary to obtain full membership are frequently referred to, "the only marvel being that the custom was continued for so many years after the Lodge joined the Grand Lodge of Scotland. Essays or masterpieces were common to all, or nearly all, the trades, though in general,—here differing from the later Freemasons,—demanding a knowledge of operative rather than of speculative science." In the Independent Lodge of Melrose "the rule which required an examination as to the skill of the craftsman was not to be infringed with impunity, for in 1707 three *persons* who had absented themselves from the required scrutiny were there and then 'denuded from aine benifite' until due submission was made." These "Essay masters" appear to have been called "intendents" or "intendars." In 1714 the Edinburgh Lodge "prohibited its journeymen from acting as deacons, wardens, or intendents.—This office is a very ancient one." The Lodge of Dunblane in 1720 records that a member, "after examination, was duely passt from *the square to the compass*, and from an entered apprentice to a fellow of craft of this Lodge." In 1729 two apprentices having "a competent knowledge of *the secrets of the mason word*," were passed. The Decreet Arbitral of Edinburgh alludes only to the "mason word." The duties of the intender were defined in 1725 to consist of "the perfecting of apprentices so that they might be fitt for their future tryalls." They occur in the books of the Lodge of Edinburgh so late as 1714; and, in the Lodge of Peebles, they were "selected at times for such a purpose, extending over a century and a half, a similar office being known at Aberdeen so early as 1670." But this reads more like Speculative or Grand Lodge masonry of later date, as intimated in a later page of the work under review.

"Boycotting" or a similar practice appears in vogue. "The Lodge used every means in its power to prevent '*unfremen*' from engaging in work on their own account; as in 1599, when one 'set the Lodge at defiance by working as a master,' and 'even those who had served their apprenticeships were prohibited from obtaining work, until they had secured the consent of the Lodge by taking up their freedom, and of the municipal authorities by the purchase of their tickets as burgesses.'" Mr. Gould records several instances of the "exhibition of spleen and imposition of fines" on the outsiders and others which may have been carried out by other Lodges equally jealous of the privileges. "No master or fellow craft to receive 'any *cowanis*' to work in his society or company, or to send any of his servants to work with them, under a penalty of twenty pounds for each offence." This word occurs in 1598, and again in 1599 (p. 390). The Lodge of Kilwinning in 1705 defines a 'cowan' as "a mason without the word." Can any of the readers of this review assist in discovering the meaning of this old word? The note given in explanation is not satisfactory. Amongst my own notes I find that "the term 'cowan' is given in the Carse of Clackmannanshire, to distinguish from the regular masons the men who are employed in building any stone walls for inclosing fields." If this term be peculiar to that locality, possibly its explanation may there be obtained. The obvious meaning of its introduction into the Lodge rules is, that the regular or educated mason should not work with the uneducated. In 1622 one was "accused of feeing a cowan"; "to work in a Lodge was the privilege of *free*-masons, cowans, or disobedient members being excluded"; and as late as 1697 an agreement of the Haddington Lodge declares that one of the members "shall not work with nor in company nor fellowship of any cowan at any maner of building nor masson work." Were such persons being introduced to assist in works for cheapness, or from some difficulty in obtaining efficient trade assistance? Happening to turn to Chapter II. we find that in the Melrose MS. (19), the term "Losses" appears to take the place of "cowans"; this MS. is the oldest, virtually, of the four Scottish versions; it is

clearly a transcript of one of A.D. 1581 or earlier.

When referring, some years since, to the Halliwell poem as written by a priest, the difficulty occurred as to how he could have been a Freemason, or connected with a Masons' Company. This is probably now explained by Mr. Gould's researches, who assumes that as it is probable none of the early masons were qualified to keep the minutes of the Lodge, a cleric would be employed; and in the records of the Lodges above named, the clerk "notar publick" in 1636 was a mason or "ane brother of craft"; other notices occur, 1706 and 1709, which are too late in our inquiry.

So much has been believed by the outside public of the value of the Masonic system as an assistance to members while travelling, that we were scarcely prepared to read the paragraph, "Those intolerable nuisances,—Masonic tramps, —vexed the souls of the Kilwinning brethren in days of yore, as they do the society in these more favoured times. In 1717," a very late period, by the way, "the members passed a resolution that, as the Lodge have been imposed upon, no charity be given to travelling brethren without an order from the master," and "no better regulation has been since made to lessen the evil."

In 1652 objection was taken to a Presbyterian clergyman because he was a Freemason. The Presbytery of Kelso replied, "that to their judgment there is neither sinne nor scandale in *that word*, because in the purest tymes of this kirke, maisons haveing that word have been ministers; that maisons and men haveing that *word* have been and are daylie in our sessions, and many professors haveing that word are daylie admitted to the ordinances." The "giving 'the mason word,' competent knowledge of the secrets of the mason word,' 'on receiving the mason word,' 'shall pay for the benefit of the mason word twelve pounds Scots at their entry thereto,' 'there was something in the assembly spoken anent the mason word,' 'such conduct brought all law and order and the mason word to contempt,' 'they then whisper the mason word," are among the references to its use in the pages under review, while Lyon speaks of the mason word as "constituting the only *secret* that is ever alluded to in the minutes of Mary's Chapel, Kilwinning, Atcheson's Haven, Dunblane, or any others that he has examined, of earlier date than 1736." This chapter has taken more consideration than was at first thought necessary, but the information brought before us deserves great attention from its novelty, and from the opportunity it gives to form a comparison with the English Lodges, never before attainable.

Chapter IX.—"Masons' Marks." This chapter commences with stating that Mr. George Godwin, the editor of this journal, in 1841, submitted a communication on the subject of these peculiar marks to the Society of Antiquaries, and another in 1843, and further mentions the other writers who have more or less observed them. Into this subject, interesting as it may be, we need not here enter, for however much it may be dilated upon, we can but refer to our opinion expressed in 1863, and also quote the words of our author:—"Probably nothing would have more astonished the workmen of past ages than the interpretation which has been placed on their ancient signatures. For any practical purpose, collections of marks are alone valuable in determining whether the same workmen were employed, to any great extent, upon buildings in the same countries."—"They could not have referred to any esoteric doctrines." Mr. Gould brings together a very interesting series of English statutes and other laws relating to the custom or requirement of affixing a mark to goods and manufactures, and gives a plate of "Masons' marks" for the benefit of the unlearned in such matters.

Chapter X.—"The Quatuor Coronati,—the four crowned or four holy martyrs,"—contains "the history, legendary, or otherwise, of the four patron saints of the Mediæval building trades." The first mention of these martyrs is traced to St. Jerome, who wrote about A.D. 400. "Four officers of the Roman Imperial Court and five sculptors were martyred for their faith in Christianity, in the reign and apparently by the direct order of Diocletian, and were interred in the same spot on the Via Labicana, a little outside Rome, where a church subsists at the present day. The names of the *five* having, in process of time, become forgotten, it was ordered that the entire *nine* should bear the appellation of the *four* crowned or holy martyrs. The names of the *five* were subsequently recovered, but the whole *nine* still retained the original title. Hence has arisen a certain amount of confusion, while it happens strangely enough that the *four* officers have become the patron saints of the building trades instead of the *five* sculptors,—and the *trade* or *profession* of the five has survived under the name of the *four*"! "The *four* crowned ones were Severus, Severianus, Carpophorus, and Victorinus; while those of the other *five* martyrs were Claudius, Castorius, Nicostratus, Symphorianus, and Simplicius; *these* were the sculptors. Their history is given by extracts from various Breviaries; unfortunately the "Acta Sanctorum," though in 1868 it had reached forty-seven volumes folio, stops short at the end of October, and therefore omits the names. "The building trades chose the sculptors as being the nearest approach to men of their own calling. All references to the *ars quadratoria*, their being masons, &c., are clearly the *invention* of those trades whose patrons they had become." It is curious that a church in England was named after the Four Martyrs, as at Canterbury. Bede mentions, in 619, "that the church was in the place where the fire raged most"; and it is noticed that Heideloff says that many altars erected by Mediæval masons were dedicated to the Four. "Where are they?" asks Mr. Gould. The four also appear in the early German ordinances. The earliest Masonic document yet discovered, in which mention is made of the Four, is English, not German; they appear in the Halliwell poem, considered by him to be "not later than the latter part of the fourteenth century."

Chapter XI.—"Apocryphal Manuscripts," containing six documents, viz., the Leland Locke, which cannot be traced before 1753; the Steinmetz Catechism; the Malcolm Canmore Charter; Kraus's MS., or Prince Edwin's Constitution of 926; the Charter of Cologne; and the Larmenius Charter, or the Charter of Transmission. Mr. Gould has done great service in clearing away these "ancient landmarks."

In concluding this long series of extracts from this interesting, valuable, and unique collection of notes and records on a subject about which so few facts have hitherto been obtained and published, Mr. Gould suggests plenty of work for the future historians of Masonry. "There are the Fabric Rolls of several cathedrals still in MSS.; possibly, also, many MSS. relating to abbeys lie hidden in the recesses of our great public libraries. Could some one be found who possessed courage and patience sufficient to enable him to go through, even with the help of the indexes, the *printed* chronicles and documents relating to our Mediæval England, I will not speak of the materials still existing in MSS., which, I think, amount to between 2,000 and 3,000 volumes, according to Sir Thomas Hardy's catalogue, he would, doubtless, clear up much which is obscure in the history of Gothic architecture."

WYATT PAPWORTH.

## NOTTINGHAM MUNICIPAL OFFICES COMPETITION.

THE competition for the proposed new Municipal Offices at Nottingham is one of the few which have been carried out on the principle of having a sketch competition first, and selecting a few from that to compete with finished drawings. The Corporation, or their professional advisers, carried out the idea of a sketch competition rigidly in the first instance, as they refused to allow any elevations to be submitted; the drawings to consist only of plans and a sketch showing the general idea of the building. We did not see the first competition drawings, and, therefore, cannot say how far the competing architects availed themselves of the real advantages of the arrangement, by avoiding unnecessary expenditure of time and labour on the drawings. The objection made to the preliminary competition system by its opponents is that just the same trouble is occasioned in preparing the preliminary drawings as in the ordinary cases of single competitions. All we can say is, that this is the fault of the competitors, who probably think that the judges will be more influenced by the pretty drawing than by the idea of a design, and each one is afraid of being out of the running if his drawings look rougher than the others. But there are signs of a reaction in this respect, and a desire on the part of public bodies to be exceedingly practical in their ideas about building; and when this is found to be the case, architects who go in for sketch competitions will no doubt find the wisdom of accepting the position and trusting to the real merit of their ideas, instead of to the mechanical work of their draughtsmen, to win the prize. We are, at all events, glad that the Nottingham Corporation have set an example of carrying out competitions on this principle, although we may observe that it would have been still better if the principle, as we have always upheld it, had been more strictly carried out, viz.: that of a very small selection from the first set of competitors, and payment to *all* selected, for their second and finished set of drawings. That is the only way of being really fair to the architectural profession in the matter. The promoters of the competition may reply, as they perhaps would in this case, "we cannot afford to pay seven or eight people for drawings which may be of no use." Then do not select so many. We have before had occasion to observe that in these cases there are seldom more than two or three designs in the first competition which it is really worth while to see in a more complete form; sometimes it is apparent at once which is the design that must inevitably be selected. In most cases, however, the promoters have bound themselves, either explicitly or by implication, to select a certain number; in the present case they promised to select "not more than eight designs" from the first competition, and by naming this limit they led to an expectation that something like that number would be selected, and they have, in fact, chosen seven. They would have done better to have left themselves entirely unfettered by any such understanding, chosen only those few of which they could say that one or other of them was really likely to be carried out, and paid them all for their work in the second competition. If they had selected four in the present competition, and paid them all, they would have been in much the same position as now, for the un-premiated designs in the competition are certainly, on the whole, quite inferior to the premiated ones, and must have been seen to be so from the first, and, therefore, it could never have been intended to carry them out. Three or four architects, therefore, have been encouraged to waste their time for nothing, as a mere matter of form. We take the opportunity of calling attention to this as a lesson in future cases. Our advice to Competition Committees,—advice in the best interests of architects and of employers alike,—is, Select only those designs from the sketch competition one or other of which you would seriously contemplate carrying out, and remunerate all those competitors for making finished drawings and enabling you to judge of the merits of their schemes in detail. Then no one can complain, and no one's time is wasted in making expensive and elaborate drawings on speculation. That is the only business-like way of doing it, and that is what we hope to see all architectural competitions come to.

In the present competition the instructions were for a building to contain the usual departments required in the municipal offices for a large town, including council-chamber and mayor's apartments and committee-rooms, a sessions court and police court with their necessary surroundings in the way of magistrates', solicitors', and witnesses' rooms, accommodation for the town clerk's department, borough engineer and surveyor, medical department, police department, and offices for business connected with gas, water, and rates; the three latter to be, as usual, easily accessible by the public. To these and various minor requirements was to be added accommodation for the School Board. The site is a piece of land about 500 ft. in length by 200 ft. in width, the long side extending along Sherwood-street and partly facing University College, so that this evidently becomes the principal front. A plan of the site, on the scale required for the drawings (sixteen feet to an inch), was furnished to the competitors, without, we may observe, any indication of the points of the compass, which can be approximately derived only from the statement in the body of the "Instructions," describing the site as bounded on the north by Shakspeare-street, on the south by Burton-street, and on the west by Sherwood-street. Perhaps this omission may be a partial excuse for one competitor ("Speedwell") who has carefully contrived drawing-offices for the

borough surveyor with a long range of windows facing south, so as to have the sun on the drawing-boards during the whole of the working hours in summer. At all events, we may suggest to official draughtsmen at Nottingham and elsewhere that aspect is of some importance in a building site, and that the north and south point is one of the first things which an architect with his wits about him looks for when he unfolds the site plan for a competition. The ground falls about 21 ft. from south to north, and is nearly level the other way, a disposition of site not unfavourable for the grouping of departments and the arrangement of entrances. The Corporation made little express stipulation as to the arrangement of the plans, only suggesting that the police department would be best at the Shakspeare-street end, the principal municipal offices at the Burton-street end, and the gas, water, and finance offices facing Sherwood-street; and most of the competitors have adopted this disposition in the main. No special style of architecture was suggested, and stress would be laid on good light, efficient ventilation, simplicity of commuication between the various departments, and substantial construction. No limit of cost was fixed, but an approximate estimate was requested. Premiums of 300*l.*, 200*l.*, and 100*l.* were to be given to the designs judged to be respectively first, second, and third in merit. The result so far is that the Corporation are so divided as to the merits of the two sets marked "Wisdom, Strength, and Beauty," and "Queen Bess" that they wish to throw the first two premiums into a lump sum and divide it equally between these two competititors, and had written to the authors of the drawings to get their acquiescence to this arrangement, but with what result we are not informed at the time of writing this. The question which should be actually executed will be for after-consideration. This is not a very satisfactory way of adjudicating. The third premium is awarded to the design marked "Sepia."*

There are, broadly speaking, three kinds of plans that one generally meets with in a collection of designs for a large and complicated building. There is the scientific plan, which is grouped around certain main points, so that the internal plan in itself should form a kind of guide to the steps of the explorer; there is the rabbit-warren type of plan, in which rooms and passages are dovetailed into one another with a conscientious desire to utilise space, and which sometimes does not prove so perplexing in actual use as it appears on paper; and there is the "simple" plan, which consists in drawing corridors at right angles across the building, dividing the spaces on each side into so many squares and parallelograms, and labelling them with the names of the rooms required. This last has the one merit of being very easy for the architect, which is not, unfortunately, the object of those who invite competition plans. Among the seven sets exhibited at Nottingham there are specimens of all these styles. The scientific plan is illustrated, on the whole, very well, in the design signed "Wisdom, Strength, and Beauty." As far as plan goes, there is no question that this design is the best; it has some faults of detail, but in its general arrangement it is the best and most conveniently grouped of all, and one in which it would be easy to find the rooms one wants, and in which also the internal communication between departments is sufficiently provided for without mixing them up together. The object to be arrived at is to isolate the principal departments sufficiently without rendering communication between them difficult or tedious when it becomes necessary. The author shows three main entrances and staircase halls; the centre one gives direct access to the gas, rates, and water offices opposite, the portions of these offices to which the public are admitted being drawn together in the centre; a smaller hall near the south end forms the centre of the municipal portion of the building, and a nearly corresponding one at the north end forms the centre and main access to the Courts department. Corridor communication runs from one hall or gallery to the others, so that traffic is not blocked anywhere, only regulated and divided. The courts and their accessories are conveniently planned, on the whole; the privacy of the magistrates in their rooms and their method of access to the courts is very well cared for; the magistrates' clerks' rooms are a little too far from the magistrates, and the witnesses' rooms are too far away and too public in the access to the court from them. This mistake occurs in nearly all the plans. Witnesses, for the time being, are often very tender and sensitive plants, and when once got into their waiting-rooms, they should have direct access to the court without going through a public corridor, or having occasion to leave their rooms again. The municipal chambers are arranged both conveniently and with a certain regard to dignity and effect; we should have preferred to see the Mayor's private room better placed, in an angle position, if possible, and better lighted. The council-room is in theatre form, which is the best for practical purposes and also for effect. The Town Clerk's offices run through three stories, which is not the most desirable arrangement, but which could, perhaps, hardly have been avoided; the Town Clerk himself is on the Mayor's floor. The Borough Surveyor, who wants plenty of light, would, perhaps, hardly appreciate having his windows recessed under an archway with a column in front of them. In other respects the official part of the building seems satisfactorily arranged. The author has decided, and we think rightly, to regard the School Board as a somewhat different department from the rest in its nature, which may be entirely isolated in a block of its own in the south-east angle of the plan, and with its own staircase from the street. In the upper plans there seems rather a large space expended in caretakers' residences, and on all the floors, especially in the basement, there are a good many water-closets placed among internal walls, and with no apparent external ventilation. We say with *Othello*, "That's not so good now"; but this defect is found in nearly all the plans, if not all, in the collection. The style of the design is based on Francis I. Renaissance. The line of the plan gives an effective outline at the angles of the main front; the front is treated with a centre and wings, with high pyramidal roofs, and a lantern of some elegance on the centre roof: plain walls below (the basement story battered), pilasters in the story under the cornice, and an attic ornamented in the orthodox manner with balustrades, balls, vases, and dormers; the windows mullioned and transomed in early French Renaissance style. The perspective is a beautifully-drawn and tinted view of the building, which is correct in its details according to the adopted style, and not unpleasing; but it wants dignity, and the total impression it gives architecturally is that of being suitable and in good taste, but hardly more. The author estimates the cost at 128,416*l.*

"Queen Bess," on the other hand, has, no doubt, been put in the place it holds mainly on account of its design and drawing. The plan is a good deal of the rabbit-warren type, and, indeed, the ins and outs of the various departments, longitudinally and vertically, make the plans and sections not a little puzzling to follow out, and some part, at least, of this puzzle element would be experienced in traffic in the actual building; and the exterior does not indicate this at all. The School Board offices are here at the north end, squeezed into one story between the police below and the courts above; they have their separate entrance. A sufficient number of entrances and entrance-halls and staircases are provided, in fact, almost an overplus, but some difficulty would be experienced, before adequate acquaintance with the building, in finding their relation to one another; nothing is central and direct, all the communications seem to be side-ways and end-ways; it would be one of those buildings in which "way out" would have to be prominently written up at various corners; a necessity which, in a public building, always shows bad planning. The council-chamber and its accessory rooms seem planned with no regard whatever to effect, and little to convenience. The magistrates' rooms are well grouped and concentrated in relation to the courts; they are kept on the north side and the public corridor on the south side of the two courts, and a little corridor running across between the two courts is adroitly labelled "Magistrates' Corridor," though it gives no access to the courts, and leads the magistrates to the public corridor, where they would never wish to go. The witnesses' room is very distant, and they have to march the whole length of the public corridor to reach the courts. These little practical jokes are always to be found in the rabbit-warren style of plan, and many of the groups of rooms show no indication which is the principal point, or which are private rooms and which are public. Water-closets with no obvious external window are frequent here also. The architectural design is in general force and picturesqueness as superior to the first-named set, as that is superior in plan. The windows are very picturesquely treated, in large groups of projecting "bows," in a style we have been used to see in architectural drawings of late; the tower, at the south-west angle, which is supposed to mark the principal staircase (only that the plan leaves us in doubt which is the principal staircase), is most picturesquely treated in its upper stage, with a series of open arches in the thick walls, and bells hung visibly in them; the whole crowned by a light but not very pretty octagonal timber lantern rising from the tower roof. What is unfortunate is that, with this decided feeling for picturesque grouping, the author is content to copy some of the poorest and weakest features of Elizabethan detail because they are Elizabethan and are the fashion. The lower part of the tower, with its paltry-looking angle quoins and the unmeaning reminiscences of pilasters running up the walls and ending in nothing, is as poor in detail as the upper part is picturesque; the interior of the council-room, a fine room in some respects (a perspective view of it is shown) is decked with that wretched and meaningless strap ornament which is characteristic of the style, and is one of the poorest forms of ornament ever invented. Parts of the design, which is beautifully drawn in pen-and-ink, show that the author is able to realise forcible and original effects in architecture, yet he has been content in other parts to copy slavishly some of the poorest details of a mongrel style, for no better reason than fashion and precedent. That is "the way we live now," architecturally; and a poor way it is. The author's estimate is 118,500*l.* He has sent a complete set of plans and sections showing the processes of warming and ventilation to be adopted, into which we cannot go in detail; it is on the principle of hot-water circulation, which also induces the currents for ventilation, and a good deal of thought seems to have been bestowed upon it.

"Sepia" (third premium), has a plan much better than the last, and not much inferior in some ways to the first, which it a little resembles in general principle, and in the planning of the principal departments. The council-room and suite of rooms in relation with it are well and effectively arranged around a small hall of their own. There are defects of detail, which look rather clumsy,—passages running parallel with each other, one private and one public, and so on,—and some of the corridors would be deficient in light. Internal communication is well kept up, but not so obvious or so clear in its lines as in "Wisdom, Strength, and Beauty," and the School Board staircase is injudiciously placed, so as to be difficult to find and without sufficiently separate access. Still, for plan alone, this should stand second; but the architectural design is not of much interest. It is Renaissance, "freely treated," which means with a good deal of florid carving and some rather eccentric detail, having the merit of originality, but not very refined; and, in spite of the elaboration of the detail, the general impression of the perspective view is somewhat heavy and uninteresting. The elevations present a symmetry at variance with fact; for instance, the School Board-room,—a large square room (a bad shape for a room of that size),—occupies the principal range of windows in one of the side pavilions; but the exactly similar range in the corresponding pavilion only lights some small clerks' offices, and other parts of the design are similarly illogical. The estimated cost is 157,883*l.* 9s. 9d., a somewhat absurd exactitude of pence in an estimate probably only got by cubing.

"Strive to Thrive" (we take the unpremiated designs in order of hanging) has some very good points in parts of his plan, and is the only competitor who has contrived, in planning his law-courts, to group magistrates, witnesses, and the public, outside the courts, so as to bring each close to their own proper entrance and lead them naturally to it; the courts are placed at

* Since this was written we learn that the names of the successful competitors are as follow: "Wisdom, Strength, and Beauty," Messrs. Verity & Hunt, London; "Queen Bess," Mr. F. H. Oldham, Manchester; and "Sepia," Mr. George Corson, Leeds. The first two are, we learn from the Town Clerk, bracketed for the first place, and the latter receives the third premium.

right angles, so as to bring the public entrance of each on to the public hall which forms the common vestibule to the two. The municipal portion is not so well planned. The gas, rates, and water offices are very well and very effectively placed in regard to public access, but the author seems to have been so bent on making grand rooms of these that he has cut himself short of room in the smaller offices. The internal communication is generally well arranged and sufficiently simple. The design is Renaissance, decorated with pilasters, and with round-arched windows; it is cold in effect, and the octagon cupola on the north-west angle is an absolutely unnecessary addition, put there to "look pretty," and having no relation to anything in the plan. The perspective interiors of some of the rooms show them as sumptuous and effectively designed. The estimated cost is 131,900*l.*

"Speedwell" is well planned in the council-room portion, but in some other parts not at all so. The curious position of the surveyor's drawing-offices, with the south light, we have before mentioned. The author says in his report:—"Ventilation has been duly considered and ventilation-shafts provided," a sentence which we quote as an amusing type of the vague assurances frequently to be met with in competition "reports." If the placing of ventilation-shafts were all that was necessary to ensure ventilation we might soon be a happy and ventilated people. Would it surprise "Speedwell" to hear that air will not go up ventilation-shafts unless it is impelled to do so by force of circumstances, either natural or artificial; indeed, that it has been known immorally to come *down* ventilation-shafts when it ought to go *up*? The design shows a rather low, symmetrical, quiet-looking building, with Gothic details, more decidedly Gothic than we usually meet with now in competition designs, but exceedingly tame and feeble in treatment. It is due to the author to say that his estimate of cost, 121,225*l.*, seems more like reality, in relation to the scale of the design, than most of the others.

"Fiat" is a somewhat bold and effective design, but, for the most part, very faulty in plan. He has a rather over-large council-chamber in the south-west angle, coming up to the main front; the mayor's retiring-room is a small octagon, branching out from the angle, and balanced by a similar octagon-room for one of the magistrates at the other end of the building, the two serving as excuses for octagonal towers at each end of the principal front, which form picturesque incidents in the architectural design. So far, well; but the law-courts department is planned just any how; the gas, water, and rates are far apart; the School Board department is central, and appears to have no entrance separate from the main central staircase. The design is of Early English Gothic type; the elevations look decidedly pretty and picturesque; the perspective view not quite so well, as it looks too much cut up and irregular in its roof lines and grouping, without a larger predominating feature to keep it in order. There are some fine detail drawings of parts of the design (the drawings altogether are a fine set), but the feeling for Gothic detail displayed in them is not very good. The estimated cost of this design is 115,968*l.*

"Espérance" is, as far as plan is concerned, a nearly pure example of the "simple" plan before alluded to. It looks beautifully straight and square and symmetrical on paper; so many parallel spaces neatly labelled; but the result is that we find magistrates on one floor and magistrates' clerks on another, and the School Board rooms are ranged along parts of two public corridors at right angles to each other, with a room of the same size as the others, marked "coals," intervening; apparently so marked because the author did not know what else to call it. The design is pure Italian, such as might be sent in for the "Tite Prize," and is treated with knowledge of the style and with some dignity; but it must be admitted that the notion of this sort of architecture, for this climate, is out of date. We say this not as attacking the notion of the Italian style by any means, for, in fact, it has been the foundation of most of the best modern architecture, and still has, perhaps, more possibilities for development, as a modern style, than any other; but it must have new life in its detail; we cannot any longer be content with the orthodox balustrades and window architraves and their pediment headings: there is a dignity about the style still, and it escapes vulgarity, whenever even moderately well treated; but it is lifeless. If we are to do anything with it, it must be not merely revived, but re-vivified. Such a style of building, too, would be quite unsuited to the *genius loci* of Nottingham, with its long, irregular, picturesque, Mediæval-looking market-place. The author's estimate is 120,000*l.*, which is far too low; for "your Italian," with heavy ashlar work and massive columns, is a most expensive style.

As we have hinted, we regard nearly all the estimates as below the mark, "Espérance" the most so, but nearly all more or less. That is the impression the designs convey, and one or two of the competitors state that they have cubed at 8d. a foot, which is certainly low for a first-class building. As to the choice, the Corporation, whether on their own responsibility or by advice, have certainly premiated the two best plans and the most effective architectural drawings that have been sent in, and, on the whole, we can find no fault with their decision except that we should have been disposed to give the first premium to "Wisdom, Strength, and Beauty" outright, in consideration of the admirable qualities of his plan, though without being stirred to great enthusiasm by his architectural design. There will, no doubt, be a feeling on the part of many that Nottingham would like to have an architectural design so picturesque in general effect as that signed "Queen Bess," and we should have a certain sympathy with those. We may, however, enter a caution to the effect that a design of that type does not always look so well in execution as it does in a brilliant pen-drawing; and that revived Elizabethan and Jacobean details will not always be so much admired as it is the fashion to admire them just now.

## BUILDERS' MACHINERY AT THE ROYAL AGRICULTURAL SOCIETY'S SHOW, YORK.

OWING to the excessive and ever-increasing competition in the building and kindred trades, the adaptation of machinery to common uses becomes increasingly necessary to promote the commercial prosperity and progress of these crafts and, as we have before remarked, the builder or manufacturer who judiciously, by mechanical means, lessens in the smallest degree the cost of production, improves the quality, or increases the range of the work performed, does not usually wait long for his reward. Although machinery, as an aid to building construction, is of comparatively modern introduction; its progress has been great, and it has without doubt done much to prevent the cost of modern house-building rising to ruinous proportions, and a very few builders can afford to be without it in a greater or less degree. This fact appears to be recognised in all parts of the country, and although the show held last week in York does not exhibit any startling novelties, it contains a number of machines and labour-saving appliances of material interest to builders. The number of exhibits, however, has of late years been greatly restricted, from the almost prohibitory tariff now charged for space for this class of machinery by the Royal Agricultural Society.

The largest exhibit of machinery especially adapted to the requirements of builders and contractors was that of Hempsted & Co., of Grantham, at whose stand we noticed a combined circular and band-sawing machine, fitted with boring-table; and although we are, as a rule, not in favour of combination machines, this exhibited some improvements over others of the same class. It was capable of cutting tenons at one operation; this was done by means of saws instead of cutters as usually employed. The wood to be tenoned was cramped vertically in a travelling-slide working on a long fence, and passed through the circular saws mounted on the saw-spindle; these cut the sides of the tenon; the wood is then traversed further, and the shoulders are cut by means of two other circular saws mounted on vertical spindles. These spindles are made adjustable transversely to suit varying thicknesses of tenons. The use of saws for cutting tenons, in lieu of cutters, has an advantage of low first cost; and we believe some users prefer a sawn tenon to a planed one on the score that it holds the glue better when put together; this advantage, however, we should say is problematical. A combination machine, adapted for estate purposes, was also on show here: it was arranged for sawing, tenoning, grooving, rebating, slot-mortising, &c.; but it did not possess any special feature of novelty. Several well-arranged combined vertical engines and boilers suitable for small establishments were also exhibited here.

Mr. E. S. Hindley, of Bourton, Dorset, exhibited several machines suitable for contractors, &c., including a circular saw-bench, fitted with self-acting feed-gear, the speed of which can be varied at pleasure or instantly stopped. This bench is well designed, but for this heavy work we should have preferred to see the main framing cast in one piece, instead of being put together in segments, as no matter how well this may be done, it is always more or less liable to disarrangement. We also noticed a small portable engine, fitted with a diagonal boiler and mounted on two high wheels; this has been specially designed for use in hilly countries and for travelling over rough roads, and is so arranged that, although the whole of the engine and boiler are above the axle, the whole balances evenly and with little weight on the horse's back. For working, the shafts are let down on the ground, and the engine and boiler then assumes a slanting position, but the tubes are so arranged that they are always covered with water. Various other vertical engines and boilers completed Mr. Hindley's exhibit.

The Reading Ironworks Co. showed a number of their wrought-iron "Universal" split pulleys. These are well adapted for driving joiner's machinery, as they combine in a considerable degree lightness with rigidity, points of considerable importance where a large number of pulleys are mounted on one shaft, as in saw-mills. We liked the general design of most of the engines exhibited here, but cannot say the same of the band-sawing machine, which was rather a crude specimen. A 6-h.p. vertical engine was combined with a patent "Nozzle" boiler, for which is claimed a rapid and economical production of steam.

Messrs. John G. Rollins & Co., Limited, London, had on show several sets of American cross-cut saws for one or two men, made by Disston, of Philadelphia. These are an improvement on many of the cross-cut saws in use in this country, as they are rapid in action and clean cutting, with little drag on the saw. The teeth are formed in the shape of the letter M, and the bevel of the middle tooth regulates the extent of the cut; the more this tooth is bevelled, the faster the saw cuts, but the more power it requires to drive it. The squarer the bevel of the tooth is made the slower the saw cuts, and less power is required in proportion to work it. The outer teeth of each section are sharpened and cut after the manner of a rip saw.

Messrs. Verity Bros., of Leeds, exhibited several mortising and band-sawing machines, but of no special novelty; and Messrs. Bateman & Co. (Limited), of East Greenwich, a saw-bench and band-saw sharpening machine, and several well-designed emery grinding-machines.

Circular saw benches were exhibited by Messrs. Ruston, Proctor, & Co., Robey & Co., Hornsby & Co., and others. The saw-bench shown by Messrs. Hornsby contains some improvements in general details, but, like all the saw-benches exhibited by the agricultural houses, it is put together in sections, in favour of which system little can be said, and it is, to say the least, remarkable that it should be persisted in year after year.

Mr. R. W. Tayler, of Bury St. Edmund's, exhibited several of his automatic safety shields for preventing accidents to workmen whilst operating circular saws; the guard consists briefly of a steel shield formed as the arc of a circle, and suspended from a curved bracket attached to the back of the bench. The shield is held concentric with the saw by a stud, and balanced by a counterpoise. It is made adjustable both vertically and transversely, and is held true over the saw by means of small guide rollers. As the wood to be sawn is pressed against the saw the shield rises before it, and rests on the top of it till the cut is completed, when the counterpoise brings it back to its original position. As the Employers' Liability Act is now in force we can recommend the above apparatus to the attention of circular saw users.

Amongst miscellaneous exhibits the portable railways and rolling stock exhibited by Messrs. John Fowler & Co. and Decauville Ainé are deserving of attention, and with slight modi-

fications would be well suited for brickfields and similar work. Some neat drainage fittings and drain-cleaning rods were shown by Messrs. Murray & Co., of Banff; B. Reid & Co., of Aberdeen; Barford & Perkins, of Peterborough; and others.

A large number of traction, portable, and vertical engines were shown. It is impossible, however, to give more than a passing notice to some of those in which novelties or improvements in construction are to be found. Amongst the traction engines Messrs. Aveling & Porter exhibit one fitted with springs or elastic wheels, which should be an advance over the older forms. Springs are also employed by Messrs. Fowler & Co. in their engines. Messrs. Foster & Co., of Lincoln, exhibit a portable engine fitted with Stark's Patent Automatic Expansion Gear, which appeared to work well, and should be useful in driving machinery when the load is very variable. A number of compound engines were shown by Messrs. John Fowler & Co., Ruston, Proctor, & Co., Garrett & Co., Messrs. Hornsby & Sons, Limited, and others. Messrs. Garrett, who were, we believe, the original introducers of compound portable engines, show an engine with a new patent boiler, in which the fire-box is fitted at the back end with folding doors of fire tiles, especially adapted for straw burning, the top of the doors being used as the fire-bridge. To promote combustion a current of air is introduced from the smoke-box end of the boiler, and the inventors claim for this system a large saving over the older plans of straw-burning in use. If it is desired to employ coal as fuel in the ordinary manner the fire tile doors are opened and rest against the side of the fire-box. A small but useful improvement in portable engines has been introduced by Mr. J. Coultas, of Grantham. It consists in the use of an endless screw and windlass, by which he raises the chimney into a vertical position, obviating the somewhat dangerous practice of a man mounting on the top of the engine.

A large number of gas and hot-air engines were exhibited, and some of these would be found useful in small builders' and joiners' establishments. Messrs. Dowson & Holt, of Leeds, showed an "Otto" gas engine, driven by gas generated on the field. The gas is stated to be a mixture of carbonic acid with hydrogen and nitrogen. It is claimed for it by the inventors that this gas can be produced at a much less cost than that made from coal, and that it is equally efficient.

A new and extremely simple gas engine, working without a slide-valve, was shown by Messrs. Cobham & Co., of Stevenage, Herts. Amongs hot-air engines we noticed a large array of the "Buckett Caloric." This engine appears to work easily and well, and, for small powers, should be useful.

Although, taken altogether, there were not many absolute novelties amongst the machinery exhibited at York, there were many fine examples of engineering construction, and much both to interest and instruct.

## HALF A CENTURY OF PROFESSIONAL JOURNALISM.

IN the most delightful of all Leigh Hunt's delightful essays, wherein he reviews the London shops and all their alluring contents, he does, to our thinking, but scant justice to the most interesting class of all, to wit, the second-hand bookshops.

No wayfarer through the metropolis and its suburbs can have failed to notice these, and few there be who do not owe them some gratitude for discovered treasures, or, at least, for the dissipation of some moments of tedium. Every profession has a special *quartier* devoted to its wants. Law books, medical books, school books, the initiated know where to find them each and all. The dear little dusty musty shops and their tempting trays are familiar to every pedestrian, and form pleasant breaks in his otherwise monotonous walks between his business and his home. For ourselves, we are quite unable to resist their mute appeal. There is a well-known shop in the Brompton-road which it is simply impossible to pass, for there do old works on art and architecture abound. Like the smile of the worldly-wise miller in Tennyson's poem, it "seems half within and half without," for it strides across the footway and reappears on the outer edge thereof, offering us treasures on either hand, and perplexing our choice by this double attack upon our one incurable weakness. We admit our frailty in this particular, and do not care to amend. We agree with Hazlitt that the older the books are the newer they are to us, and, like him, we think none the worse of them for having delighted our great-grandfathers before us. As we enter the shop we are at once in dreamland. The old volumes in their infinite variety of shape, size, and condition are to us in themselves of engrossing interest apart from their contents. What a field for speculation each one presents! How often have they been knocked down to the lowest bidder, and roughly handled by illiterate churls! The dust lies thick upon their edges, and damp and mildew have stained and spotted their "sere and yellow leaves." Their backs, once smart with binder's bravery, peel off at our touch. There is a tragedy unconsciously written in the fly-sheets of many of them, eloquent of the hopes of youth and the needs of age. We can read into the names inscribed and reinscribed, the book-plates, the armorial devices,—stories of life's vicissitudes.

This one was given to a youth at his entering upon the serious business of life. It is only partly cut, and has not been much used. This one, gorgeous in morocco and gold, was a presentation copy, "with the author's compliments." We see the learned author with carefully nibbed quill complacently caligraphing, and we can enter into the satisfaction with which he appended to the dedication those swirls and flourishes,—those graceful gambols of his happy pen. Could we but find within the covers of the old volume the formal acknowledgment of its safe receipt, and all the courtly civilities the occasion called forth! This is a reviewer's copy,—the little string of mystic marks on the cover is no mystery to the initiated. They point to the weak places; a slip about an unimportant date, or the misreading of some complicated historical occurrence of no consequence now to anybody. The censor knows all about it, however, and brings the whole of his learned weight to bear upon the poor scribe. We have, perhaps, improved upon our predecessors in this as in some other matters, and modern criticism has gained in acumen what it has lost in acerbity.

Much may be learned from the prices pencilled and oft revised in these old books. Poor and shabby as they are, they have still their ups and downs; their values fluctuate, and there is no knowing whose turn may come next. These few volumes of an old magazine could, until recently, have been bought "for an old song." The trifle at which they were assessed has been obliterated, and 2*l.* 10*s.* is substituted in a bold confident hand; for a distinguished author lately avowed the parentage of some articles therein, and what was almost valueless became valuable at once. From an examination of these modest little volumes we learn that fifty years ago the architectural profession had no exclusively representative journal. Loudon's excellent Encyclopædia treated of farm and cottage building, and was instrumental in diffusing sound views on architecture in some of its humbler forms. But it was not until 1834, when the first number of the *Architectural Magazine* made its appearance, that the profession was furnished with a special medium for its wants, and an advocate of its peculiar interests.

The magazine was published monthly, and consisted of forty-eight pages of small octavo, well printed on good paper. Its contributors were men of practical knowledge, and of approved literary skill; and it is superfluous to add that, being conducted by Mr. Loudon, the editorial department was unexceptionable. It was copiously illustrated, and the illustrations were for the most part creditably drawn and engraved,—in some instances they were really excellent. The matter was varied and appropriate, comprising original communications on the principles of design, on the history of art, on the condition and prospects of the architectural profession. It contained reviews of art books in all the European languages. Intelligence interesting to all engaged in building was gathered from every available source, and queries on every conceivable subject found a place and almost always a reply.

Many well-known names, and many still at work on the literature of the profession, are appended to the articles. The editor's hand is continually seen, and a no less renowned writer than Mr. Ruskin enlivened the pages with peculiar charm from almost the commencement of the enterprise until the very end, the last number of all containing an unusually long and interesting contribution from his pen. Notwithstanding all these assurances of success, the experiment appears to have failed for want of due encouragement, and the last issue was in January, 1839.* In 1842 the first number of the *Builder* appeared, and, as our readers know, achieved a success which is steadily increasing "even as the years do grow."

It is needless to dwell upon the development of professional journalism in our day,—upon the number of periodicals now exclusively devoted to the building interest,—their extended scope and the vast mass of information on matters sanitary, social, practical, artistic, which now comes within the purview of the conductors of such a journal as this. But if, as Mr. Bright says, the best guidance for the future is to be sought in a study of the past, it may be not amiss if we glance again through the pages of the first periodical which dealt with the art with which we are more immediately concerned.

The first thing which strikes us is the part which women were then invited to play in the improvement of the art of architecture. From the opening address to the close of the work references are found to the influence of female taste on the encouragement of art. The preface states that one of the objects of the magazine is to recommend architecture as a fit study for ladies; and in another place it is boldly urged that the art will "never flourish" until it is made a "branch of female education." Now that we have lady-doctors and the Americans have lady-lawyers,—and even lady civil-engineers,—the lady architect may make her appearance amongst us. She has already attacked the out-works and taken up with the decorative side of the art, and, if the citadel at last fall, we may console ourselves with the reflection that such a result was not unforeseen fifty years ago.

Another striking fact disclosed by the magazine in question is the similarity of the complaints against the profession and its professors to those occasionally heard at the present day. The profession had lost caste. The members of it were neither so competent nor so honest as in the good old days. One point upon which the writers of the time were in agreement is the immorality of surveyors who gave evidence in the Law Courts on professional subjects. They are said to have become a laughing-stock and a reproach: that if A and B swore a thing was black, C and D, of equal eminence, could easily be brought forward to swear that it was white,—that the judges split the difference and decided that it was grey, and that justice was in consequence rarely or never done. The density of the legal mind when dealing with building affairs, and the astounding discrepancies between the views of experts are as common, and yet as strange now, as they were fifty years ago.

Another point which then vexed and still exercises the professional mind is the employment and payment of quantity surveyors. It was held that these useful agents in all building transactions of any importance were obnoxious to employers, and that they were consequently introduced into the business by stealth. Complaints were rife that the measuring surveyor of the period was little better than an empiric, that his decisions were arbitary and irrational, and were often to the hardship and sometimes to the ruin of the honest builder. It is at least gratifying to be able to write that some other charges adduced against the profession at large would not nowadays be seriously advanced, or if expressed at all, would not be allowed to suffer judgment by default.

One characteristic of the first architectural journal is the little encomiums appended to some of the articles by the conductor holding up to public admiration the talents of the contributor, and in other cases expressing dissent from the views put forth. In all cases it is quite evident that the conductor was far ahead of the main body of his contributors in the views he held upon the principles of the art. The designs with which the pages are garnished prove to be, as might have been supposed, the weak points of the whole. Some of them are, indeed, wonderful compositions, and especially those in the "Gothic taste." It is scarcely conceivable that the suggestions for furuiture, — "Norman"

* In a less slight sketch, the part played by the *Civil Engineers' Journal* would be touched on. This was established in 1837, and ceased its career in 1842.

pianofortes and the rest,—could have been seriously intended. We have certainly improved in a number of things in the last half-century, but in others we are apparently just where we were. Problems which puzzled the architect puzzle him still. Difficulties which were thought to have been set at rest for ever have still to be encountered. There is something at once sad and humorous in the failure of projects which were ushered in with so much pomp and circumstance, and which have been swept into the limbo of failures. As we follow the calculations of the promoters and peruse their glowing anticipations, we can but see in them the counterpart of projects of our own time not less eagerly pursued and firmly believed in. To take an instance which has reference to a question of the moment. The old Hungerford market cost 210,000*l.* It was built, amongst other things, to secure cheap and wholesome fish for the public, and to "break down the monopoly in that trade." The market is a thing of the past, and not a vestige of it remains; but fish is not cheap, and the monopoly has still to be "broken down." History repeats itself. Readers who look back through our own old array of volumes will be surprised to find how many now flourishing projects are therein suggested and initiated, and how many changes advocated have become accepted.

## CROYDON.*

FEW parishes in England can show so long, clear, and continuous a history as Croydon, the very name of which has come down to us unaltered through a thousand years. Long before the Norman Conquest it appears in written documents as Crogdene, and the Anglo-Saxon "*g*" had the force of our modern "y." Its etymology suggests "the crooked or winding valley," and its topography supports the derivation.

The fact that the archbishops of Canterbury were lords of the manor, that one of the archiepiscopal residences was at Croydon, that its pleasant woods and clear streams made it a favourite resort from the cares of State,—all conspire to bring its history into prominence, and to fix the stages in its varied career with exceptional accuracy.

Turning our eyes upon the past, we can clearly trace the long line of events which have made up the record of this interesting town. Within living memory, the "Dart," the "Vivid," and the fifty other stage-coaches daily rattled through its streets, waking the valley echoes with the music of their horns, and filling the whole place with bustle. George IV., passing through on the way to his favourite Brighton, when a great scandal was hanging over his reign, is rudely asked, "Why don't you bring your wife, George?" and is seen on that road no more. We catch glimpses of George III., "Farmer George," attended by a single groom, spurring on to Lord Liverpool's seat at Addiscombe. The Civil Wars have left their mark. Dragoons were quartered here in waiting for the Kentish "rebels," and cannon shot, which are from time to time unearthed, show that this was one of the many scenes of that long unhappy conflict. Queen Elizabeth loved Croydon, and was a frequent visitor. In 1569 she held a Great Council in the Palace, and found the streets "deep hollow ways, and very dirty, the houses generally with wooden steps to them, and darkened by large trees growing before them, and the inhabitants generally smiths or colliers," *i.e.*, charcoal-burners, a numerous race who found here ample employment in the vast encircling woods. The collier of Croydon was a familiar personage in the poems and plays of that day, and was credited with a degree of acumen proportioned to his assumed relationship with another notorious personage reported to be of the same colour. These royal visits put the place in a flutter, and it was with sore difficulty that the monstrous retinue of the Queen could be suitably lodged; chambers "with chymeneys" for the ladies of the court being in great request, and not easily found. We see the prominent figure of Archbishop Whitgift,—a name ever dear to Croydon,—a prelate who took the prudent course of dispensing his benefactions in his lifetime "as the safer way," building and endowing almshouses, and foremost in all charitable works. "A man of milde and moderate disposition, of a free minde, and a bountifull hand towards his poore neighbours, but especially towards schollers and strangers." May his tribe increase! He knew well how to maintain the dignity of his high office, and would, upon occasion, enter his cathedral city with an escort of 1,000 horsemen; but for himself he was never so happy as when visiting the poor whom his hospital sheltered, and with whom he would many a time find occasion to dine. Still further down the lengthening perspective we see the burly figure of King Henry VIII., who complained that Croydon was "low and rheumatick, where he could never be without sicknesse," from which we may infer that he had put it to the proof. Through the connexion of the town with the long list of English Primates we keep touch with incidents in Mediæval history. Trials for witchcraft, trials by combat, the slaughter in 1264 of fugitives from the Battle of Lewes, and so on up the stream of time until we reach the first Archbishop Lanfranc, whose name still stands in Domesday Book as Lord of the Manor of Croydon. A Saxon document refers to a "church and a mill" there. In the year 960 the witness to a will is "Elfsies, the Priest of Croydon," and the presence of the Saxon is attested by the names which are rife in the locality. Waddon is no other than Woden or Odin, and in *ham*, *hurst*, and similar terminations of the local nomenclature we have the surest proof of Saxon occupation. The ubiquitous Roman has left the trace of his dominion in sumptuous villas,—in coins and pottery,—and at least one Roman road traversed the town, and is still known as Stane-street,—the stone or paved street. There are indeed antiquaries who contend that Woodcote, close by, is the real and only genuine Noviomagus, the site of which has long been one of the cruces of that learned fraternity.

Bronze implements dug up in plenty carry us back to British times, and more ancient still, we find flint implements and other relics of a tribe of fellow-mortals whose personal history is a blank, and whose existence is only revealed to us by these evidences of human needs met by patient human skill.

> "Antiquity appears to have begun
> Long after their primæval race was run."

Shadowy and remote as this period may be, it is but modern in comparison with the duration of Time disclosed by the geological record of this district. Ages of incalculable length stretch out before us,—when the restless sea pulsated over these hills and valleys, depositing the sediment which has given us the chalk downs and those beds of clay and sand deep down in which lie buried the remnants of a teeming life, a time when the climate was of tropical heat, alternating with glacial cold; when the turtle and the crocodile were man's companions, and palm-trees waved where now the ash and the oak abound.

There is not in this district much of man's work above ground that is really ancient. The old church* which, from its Saxon foundation to the work of Whitgift, showed example of every phase of our native styles, was burned down in 1867, and nothing of it now remains but a few old monuments. The palace, which was on a scale of unusual splendour, has been degraded piecemeal until the chapel has become an industrial school, and the hall a place for bleaching linen. In underground cellars, and built casually into modern walls, a few Mediæval fragments may still be found, and that is almost all that can be said. The old inns for which the town was famous have disappeared, or, like Bottom, have been, alas! "translated." The old river courses, which, until our day, had scarcely varied since the Saxons had their mill at Waddon, are diverted or dried up, and Croydon, with all its undoubted antiquity, is practically a modern town.

The author of this chronicle says, with a *naïveté* bordering upon the humorous, "During that long period which preceded the landing of the Romans in Britain, the aspect of Croydon was very different to what it is now." Very likely.

For, without going quite so far back, it is sufficiently startling to find that exactly one hundred years ago Croydon contained only 700 or 800 houses, and a population of 4,000 souls, while the census of 1881 gives the population at 79,000, and the successive editions of the Ordnance maps show that the town is rapidly extending in every direction, hanging on to the very skirts of the metropolis, which was but lately ten miles away.

Croydon was one of the fifteen towns included in the first provisional order issued under the Public Health Act of 1849. Previously to that date the sanitary, or rather insanitary, state of the town and neighbourhood was simply shocking. The houses and streets were subject to periodical flooding by the rising of the Bourne, which washed the very coffins out of the graves. Stagnant ditches, charged with animal and vegetable matter, poisoned the air with their noxious exhalations. Filthy ponds received the refuse of slaughter-houses, and the soakage from cesspools polluted the wells and springs. One half of the houses had no water supply of any sort, and the inhabitants were compelled to buy beer at the public-houses for leave to use the pumps in their yards; the consequence of all which was that Croydon was proverbially unhealthy, and had the unenviable distinction of the highest death-rate of any town in the kingdom.

The town is now supplied with water, both abundant and pure, from artesian wells bored deep down into the water-bearing strata.

The sewage question was grappled with in a determined spirit, and gave much trouble at first. The local Act of 1858, however, enabled the authorities to extend the field of their operations, and by large irrigation farms and works to separate the solid matter for purposes of manure, and to turn the innoxious effluent water into the Wandle. The result is said to be not a financial success; but that is not the proper test. The death-rate has been lowered from 28·16 to 16·13 per 1,000. Uncounted human lives have been prolonged, and the load of mental depression has been lifted from off perhaps millions of souls. Other works, such as lighting and road-making, have gone hand-in-hand with sanitary progress. Churches, schools, and institutions of all sorts have been built; both the moral and material wants of an enormous population have been cared for, and public spirit and energy, aided by science, have converted the Croydon of the Tudors, with its miry ways, into one of the driest, cleanest, and healthiest towns in England. The poet says that "God gives a various gift to each," to some the patient care which accumulates the materials which another order of mind as patiently assorts and arranges. The writer of the book before us has been dilligent in collecting a vast amount of information concerning Croydon; and we thank him for his pains, but,—and we hope he will take it as kindly meant,—he lacks—

> "The faculty divine
> To penetrate, resolve, combine,"

And another hand must give it due order and coherence before Croydon can be said to have a satisfactory chronicle.

## SOME POINTS IN TOWN GOVERNMENT.

MR. H. PERCY BOULNOIS, Borough Engineer of Portsmouth, has written a very useful book, "The Municipal and Sanitary Engineer's Handbook."* The author recites how all the Acts of Parliament concerning this subject give the title of surveyor to this important office, but that "although this title may have well suited the office up to the year 1847, when it was made the legal title, the prodigious growth of municipal work during the last thirty-five years has made it necessary that some change should be made, and the title altered to that of 'engineer,' or some other similar suitable name"; and that "there can be little doubt that it is absolutely necessary for the town surveyor of the present day to be a competent civil engineer of great knowledge and varied experience," with which latter remark we fully agree.

But, just as the Town Clerk must be, or, at least almost always is, a qualified lawyer and not merely a clerk, so the name Town Surveyor should imply, equally, that the office is that of a civil engineer. It no more follows that because he is called the Town Surveyor he is a surveyor merely, than, in the other office, the Town Clerk is a clerk merely. At present, according to the locality, the town surveyor is either the Town Surveyor proper, the Borough Engineer, the Borough Surveyor, the City Surveyor, or the Surveyor to the Local Board, all of which offices are essentially and identically the same in nature and requirements, although the larger the town the larger the experience of the Town Surveyor in works of civil engineering ought to be, if it is not. Certainly it would require, at

* "A Short Chronicle concerning the Parish of Croydon." By J. Corbet Anderson. Reeves & Turner, 196, Strand, London. 1882.

* For description of the old Parish Church of Croydon, see the *Builder*, vol. xliv., p. 722.

* London: E. F. N. Spon.

the first somewhat of courage in the civil engineer of great knowledge and varied experience to take the office under the name of the Town Surveyor, but the name would soon become equally honourable with that of Town Clerk. If it were thought that a surveyor merely might be good enough for small towns, but that for large towns the name should be that of engineer because of the largeness of the town, that would be a mistake, for a civil engineer is necessary for the office in either town; and, if it were intended by the name "engineer" to signify that it meant the surveyor of a large town, the object would not be accomplished. It is not the surveyors of all large towns who assume, or have assigned to them, the name of "engineer"; in some of the largest towns the engineer remains in name the borough surveyor; and it needs but one step, viz., that his office should be that of Town Surveyor, in order to place local custom in accordance with the wording of the Acts of Parliament.

Much may be done in the right direction by a proper examination and certificate, in course of time; but there are many highly-qualified civil engineers holding the virtual office of town surveyor,—the ostensible office of borough engineer, borough surveyor, or city surveyor,—who would not like to submit to an examination of any newly-constituted body or institute, whether sanitary or otherwise in its designation. Still, there does want some little inquiry into the subject; for, although these highly-qualified civil engineers may very properly stand upon their dignity in the matter of examination and certificate, some of them pay less regard to the proper sanitary requirements of the town than to works of civil engineering usually so called. They cannot overcome the desire for a display of magnificence. It is very proper, and highly to be commended, that when a town council or a local board desire to erect any structure which demands great knowledge of civil engineering in its design and construction, they should go no further than to their own engineer for all that is needed, and, as a matter of fact, there are probably few cases in which it would be necessary to do so; but nevertheless, desire of display in this direction is not a trait which can be much admired in the borough engineer, city surveyor, or surveyor to the local board, or, as we should prefer to see generally adopted, the generic term, "Town Surveyor."

It is because Mr. Boulnois has constituted himself,—very worthily,—an authority on this subject, that we make these remarks in this connexion. With the book as a whole we are greatly pleased; the remarks are concise and judicious, and nothing which properly bears upon the subject seems to be omitted.

On the new question of lighting streets by electricity, the author condenses a good deal of information into a small compass, remarking, however, that electric lighting will not be easily adopted in old cities and towns, where, in addition to the main streets being narrow and crooked, there are few large open spaces suitable for intense lights, and where there are numerous small courts and alleys which require lighting, and which must, for a long time to come, probably be lighted with gas. Each gas lamp-post should be legibly numbered, and the town surveyor should keep a register in his office of all public lamps in his town. In order, says the author, to determine the distance apart of public lamps in a street, it must be remembered that the intensity of light is directly proportional to the illuminating power of the light and inversely proportional to the square of the distance of the light, if unreflected. For instance, the illumination of any point between lamps may be arrived at by adding all the quotients obtained by dividing the illuminating power in standard sperm candles of each lamp by the square of its distance in yards from the point; thus, a point midway between two lamps of fifteen candles each, 20 yards apart, would be reckoned thus:—

$$X = \frac{15}{100} + \frac{15}{100} = \cdot 30.$$

In this country the rule has generally been adopted that public street lamps burning 5 cubic feet per hour of 15-candle gas should not be placed at a greater distance than 60 yards apart, the average distance in most English towns being about 40 yards. In lighting by electricity the lamps may be of the "arc" form, or the "incandescent." The former is produced by the electric current passing between carbon points, and requires considerable electrical pressure; they give a light of from 1,500 to 4,000 candle power; the mechanism of arc lamps has to be of the most delicate kind to insure the proper distances of the carbon points being maintained. The lamps should be guarded by globes of frosted glass, not only to prevent incandescent pieces of carbon from falling, but to lessen the glare of the light. "Incandescent" lamps are of small size, giving a light of from 8 to 50 candle power, which is produced by the heating of a filament of carbon in a vacuum owing to the resistance caused to the electric current by this contraction of the conductor. It has been stated, without contradiction, that arc lights can be produced of about 2,000-candle power with 1-h.p., at a cost of from 3d. to 6d. per candle per annum of 4,000 hours, gas costing from 1s. 9d. to 3s. 6d. per candle, according to the price of the gas. Incandescent lamps cost 3s. to 4s. per candle per annum, as their life is short, and only 200-candle power can be got from 1-h.p. The latest investigations into the comparative cost of lighting by gas and electricity are those made by Sir Joseph Bazalgette on the Thames Embankment, which are quoted.

On the subject of breaking up streets over gas and water mains, the author says it is well known that a trench cut longitudinally through a street takes a long time to heal. Asphalte shows it the least if there is a good backing of concrete, but all other pavements suffer considerably in the process, as it is almost impossible to maintain their strict contour, and with macadamised roadways the result is simply disastrous. It is unfortunately the practice generally for the men in the employ of a gas or water company, after laying a pipe, to try and ram into the trench all the material they have removed, without allowing for the cubical contents taken up by the pipe, or if they do condescend to cart anything away, it is generally the metal, which they think will come in nicely for the repairs of the trench during their liability for the repairs. What ought to be done is that no filling of ordinary earth should be allowed to come within at least 6 in. of the top of the trench, which should then be filled in with good road metal, and as this wears down it should be brought up with more metal. With regard to the breaking up of streets for the purpose of repairing existing house-drains, there is uncertainty in the interpretation of the clauses of the Public Health Act which bear upon this point, and the result is that a great many towns have inserted clauses in their improvement Acts requiring notice from persons intending to break up streets for this purpose, and specifying the manner in which the work shall be done; but a better method, the author states, is to insert in any private improvement Act a clause giving powers to the Urban Authority to execute all drain work themselves, thus ensuring that any interference with the street shall be done in a proper manner by men accustomed to the work, and also that the drain itself shall be of perfect workmanship.

With regard to the putting in of new house-drains by the owners or occupiers of houses, and connecting them with the sewers, which they may do under the provisions of the Public Health Act, 1875, subject to the control of some person to be appointed by the Local Authority to superintend the work, the first thing is to frame the regulations and appoint the person, the regulations requiring notice to be left at the office of the town surveyor, particularly naming the point where it is desired to make the connexion; that the ground shall be excavated to the required depth with all possible expedition, the work to proceed night and day, and the excavation to be properly fenced, lighted, and watched; the sides to be properly supported; all surplus earth to be carted away as speedily as possible; the road metalling to be kept separate and replaced, and other necessary provisions which the author sets forth, all of which are highly necessary both for public safety and economy. But, says the author, notwithstanding these regulations, it is very difficult to ensure that the whole of the new drain is properly executed by the person who is carrying out the work, for if he wishes to deceive the surveyor's department it is not very difficult to do so in works of this description. It would be far better if all drains of dwelling-houses could be constructed solely by the staff of the Local Authority. All such work could be done better and cheaper, both for the ratepayers and the owners of property, if carried out by the trained staff of the Local Authority; nothing would be gained by scamping the work, and one of the worst stumbling-blocks in the interests of sanitation would be removed by this simple and effective measure.

If a gas or water main or house service leaks through defective work it is quickly detected and remedied; not so with a drain, for the deadly gases may be oozing through defective joints or the foul liquid may be poisoning the soil under adjacent dwelling-houses, and many victims may suffer before the cause is ascertained, and even then laborious legal machinery has to be put in force before it can be rectified.

With regard to new buildings, the author has drawn up a number of regulations for the deposit of plans with the local authority, but remarks that this is of but little practical good unless it can be insured that the buildings are erected in conformity with them. It is quite impossible for any single person in a large town to perform this duty, but if the sanitary authority really wish their by-laws to be enforced it can be done, of course, by employing a sufficient number of persons. This simple reference to whether the sanitary authority really wish to enforce their own by-laws, opens, although, perhaps, unintentionally on the author's part, a question the solution of which would make plain many things in the management of towns which are very mysterious to people in general; they cannot understand why the rates should be so high, and yet so many complaints made, which are made evidently not without reason; why there should so frequently be a rage of illness in different parts of the town, so many people in the workhouse, and so many begging, while many more are but half living at "home"; nor can they understand why, paying so high a rent as they do for their own houses, they themselves have so much sickness in the house, such dirty roads, except in a few of the "best streets"; these things they cannot understand, in a town where the rates are so high. And yet the choice of town councillors rests with them, and it is these who constitute the committees, with whom lies the initiative of every order under which the ratepayers' money is spent,—misspent upon some things and not spent at all upon others, or so sparingly as to be insufficient and almost useless. Well, shortly, the chosen representatives of the people do, and order to be done, according to the light that is in them; they can do no more.

Butchers, bakers, tailors, who, during an industrious and honourable life, have saved money and invested it in small houses, called "cottage property" to give it a pretty name; builders and jerry builders, and men with large sums of money which they do not know how to invest safely, but who can find a profitable use for it if only they can "get into the Council"; these are they who deal out with a niggard's hand, from a store which is not their own, what is for the health of the town and the general benefit and convenience of the people. But so long as votes can be obtained on the most flimsy pretexts, and people will suffer themselves to be gulled by candidates whose only recommendation is that they promise to "keep down the rates,"—a promise, however, which they do not perform,—so long will heavily-rated towns continue to show a fair outside and be foul within, dirty, unhealthy, and degrading to the inhabitants.

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**New Hotel and Shops, Birmingham.**—Mr. C. Ede, of this town (whose Gothic shops were recently noticed in this journal), has in course of erection several shops and an hotel, situated in Hampton-street and Summer-lane. The buildings will be of an early type of English Gothic. The shops will be three and the hotel four stories in height, with stone and terra-cotta enrichments varied with carving, ornamental gables, parapets, &c. The front of the hotel is circular on plan, and arising from the ground-floor cornice is contemplated a large and elaborate bay window with carving and open arcading, terminating with an enriched pinnacle. The tympana of the remaining windows of the first floor will be filled in with Minton's tiles to various designs. The front roof will be tiled and the back slated with ornamental tile cresting. The finishings of the hotel are intended to be in harmony with the style, and tinted glass in lead lights will be introduced. Mr. John Statham Davis is the architect, and Mr. Evans the builder, both of Birmingham.

## THE NEW SUEZ CANAL.

A GREAT deal of time, and it is to be feared a great deal of bad blood, would have been saved, if those persons who have spoken so confidently as to the exclusive right of the "Universal Company of the Suez Canal" to a passage across the Isthmus, had taken the trouble to read the documents on the subject which were laid before Parliament in 1876. Among others, they would have found the following, which we translate from the original French:—"Convention between his Highness the Khedive of Egypt and M. Ferdinand de Lesseps, President-Director of the Universal Company of the Maritime Canal of Suez, acting in the name and on account of the said Company, in virtue of the full powers which are delegated to him. . . . . Art. 3. By consent of the two parties, it is understood that the Company has no other object than the working, the maintenance, and the augmentation of the Canal. It re-enters, in consequence, into the common right, and renounces every exception, faculty, or special privilege. Thus, the Government will in future exercise exclusively the service of the post, and of the telegraph, for the Company, as for the public. The Company will, however, keep the faculty of its special telegraph for the service of the works, and of the transit of ships in the Maritime Canal. . . . . Art. 6. The advantages resulting to the Government from the preceding articles are valued by common accord at 20,000,000 francs."

The payment of this valuable consideration, and of a further sum of 10,000,000 francs for the hospitals and other establishments made over to the Government, was made by the detachment of the coupons from the 176,602 shares belonging to the Khedive, which were afterwards purchased by the English Government.

Thus the inconvenience to which the purchaser (the Government) has been subjected by the disqualification imposed on 44 per cent. of the shares in the Canal, for which it has paid 4,000,000*l.*, by the detachment of the coupons, has been a direct effect of the consideration which the company have received for abandoning "every exception, faculty, or special priority" to which it might otherwise have claimed that it was entitled.

## THE ABATEMENT OF NUISANCES.

### SANITARY AUTHORITIES.

IT is always well when the hand of the law is successfully invoked to compel public authorities to perform their duties, and not the least satisfactory of such occasions are those where the duty neglected is in relation to the health of the community, and is connected with sanitary matters. From this point of view, the recent case of Charles *v.* The Finchley Local Board (52 *Law Journal* Reports, Chancery Division, 554) is of considerable interest, but it has also much value as pointing out what is the duty of local boards in circumstances similar to those which were proved in this case. If read together with the previous but still recent decision of the Court of Appeal in the case of the Attorney-General *v.* The Guardians of the Poor of the Union of Dorking (Law Reports, 20 Chancery Division, 595), which in its turn confirms the somewhat earlier case of Glossop *v.* The Heston and Isleworth Local Board (Law Reports, 12 Chancery Division, 102), we get the general duty of local sanitary authorities, in somewhat difficult circumstances, clearly explained. These cases also throw some light upon the 21st section of the Public Health Act of 1875. In the latest, which for brevity may be called the Finchley case, there was a nuisance caused by a single individual, which was capable of being stopped by physical means. In the Isleworth case and the Dorking case the nuisance was caused by several individuals, and the result of the action, if successful, would have been the issue of an injunction by the Chancery Division to compel the local authorities to obtain an injunction to make the offending persons cease from committing a nuisance. In both the Isleworth and the Dorking case the application involved changes in the general system of the drainage of the place, which it was clearly shown the sanitary authorities were anxious to make. In both these cases, the Court refused to grant an injunction, but in the Finchley case it was issued. The principles which must guide local sanitary authorities in these matters will be more clearly apparent by some more detailed notice of these cases, of which the main result has just been given. In the Finchley case, to state the facts shortly, there was a ditch which ran through the plaintiff's property and near to his house. At no great distance two new houses were erected by a builder named Cooper, and close to these houses was a ditch which was ultimately covered in, and which, by agreement between Mr. Charles and Cooper, was to carry off the surface water from the building land, and convey it into Mr. Charles's ditch. The new houses already mentioned were drained into cesspools, which it was intended should, when necessary, be emptied by hand. After some time had elapsed, Cooper constructed an overflow-pipe from the cesspool of one house to his, and thence to the plaintiff's, or rather the Local Board's, ditch, the consequence of which was that it was filled, not simply with surface-water, but with sewage, which, as more houses were erected, would become more abundant. As it was, however, the sewage of the single house was sufficient to cause an actionable nuisance. The consequence was a complaint to the Local Board, who, it is worthy of notice, employed Cooper as their builder, so that he should have been the last person to do anything in the way of transgressing sanitary principles. The Board then took proceedings in the police-court against Cooper, and the occupier of the particular house, to compel the abatement of the nuisance; but the first summons was dismissed by reason of the lapse of time, and the second on the ground that the owner of the house was not liable for Cooper's act. The Board took no further steps, and Mr. Charles then applied to the High Court for an injunction. This, as we have already stated, was granted. The grounds upon which this decision rested were that Cooper was exceeding his right. All that the plaintiff had stipulated that he should do was to discharge surface-water into his ditch. Further, the Local Board could physically stop the flow of sewage, since it had long been laid down that a person who has a limited right only, and exceeds that right so as to produce a nuisance, may have his limited right entirely stopped. "If a man," says Baron Alderson, "has a right to send clean water through my drain, and chooses to send dirty water, every particle of the water may be stopped, because it is dirty." Therefore, as the Local Board were the sanitary authority, they could stop the entire flow from Cooper's drain. Further, the judge was of opinion that the drain from the house to the cesspool, and from the cesspool to the pipe which communicated with the Board's channel through the plaintiff's land, was a drain within the meaning of the 21st section of the Public Health Act of 1875. It was held, in fact, to be a drain, which empties into the sewer of a local authority, and the mere fact that the cesspool disconnected the drain in its entirety from the house did not prevent it from being one in connexion with premises. Nor, again, did the fact that the drain communicated with Cooper's own pipe, which in its turn communicated with the channel, prevent it from being a drain which in reality communicated with the channel under the jurisdiction of the Local Board.

So much for the Finchley case; let us now see in what manner it differed from the Dorking and the Isleworth cases. This latter is clearly summarised in the judgment of Mr. Justice Pearson, and his statement of it cannot be improved. In this case he says, "There was an old system of drainage under which a certain river called the river Crane had been for a long time polluted, and was being polluted, and there was no doubt that that system of drainage then in existence was a nuisance to the plaintiff in that action. Shortly after the Isleworth Board came into power the plaintiff complained to them of the nuisance he suffered from the existing system of drainage. They admitted the nuisance, and said they would take steps to remedy it. The plaintiff thought they were slow in proceeding, and he thereupon brought an action against them for the abatement of the nuisance of which he complained. The Court held that the Board had done nothing; that they had merely come into existence and found a system of drainage there which was bad; that it was therefore within their powers, and would be within their duty, to remedy it by devising a new scheme of drainage." Then the Court further held that they could not grant an injunction, and that a "mandamus," as it is called in law, which would be the proper remedy, they certainly would not have granted, because "the Board had not been in existence a sufficient time to enable them to perfect a new system of drainage." This, it will be observed, was thus a case in which there existed a perfect willingness to make a new system, but in which there had not been sufficient time for the purpose, and where a single drain could not be stopped up. Again, in the Dorking case, it is doubtful if the Board had a right, in order to abate a particular nuisance, to stop up a large sewer, and "thereby to cause a most frightful nuisance to the inhabitants of the district whose drainage it is their business to protect and perfect." Moreover, the persons who claimed a prescriptive right to drain into the sewer would have had to be stopped from so doing, by an application for an injunction; and again, as in the Isleworth case, the Board were willing and anxious to improve the drainage of the whole district, and had, indeed, applied to the Local Government Board on the subject, which, as is very often the case, did not, to quote from Sir George Jessel's judgment, "seem to have hurried itself." Therefore, in the Finchley case, we have power but an unwillingness to stop up a drain, that drain a single drain, the nuisance arising from an individual act, so to say. In the other cases we have a new system required, willingness and efforts to complete it, and the impossibility of abating the nuisance without detriment to many people. The distinction between them seems, therefore, quite clear.

## SOMETHING ABOUT MADAGASCAR AND ITS ART.

THE events of recent years have hurried the conscientious newspaper reader to many very distant and widely separated parts of the world. He is whirled from Ireland and the backwoods of America to Japan and Afghanistan, from Cyprus to the Cape, from Tunis to Egypt, and from Egypt now to Madagascar. Africa in fact, what with a previous Ashantee war and Mr. Stanley's praiseworthy efforts, promises to become before long anything but the "Dark Continent" it seemed even to the contemporaries of poor Livingstone. A singular interest, however, seems to have been roused by the recent action of our French neighbours in Madagascar. Their troubles with the Great Land, as the natives term it,—and it certainly is the third largest island in the world,*—by no means date from yesterday. For two hundred years and more it has been one of the pet colonial projects of the French to render themselves masters of Madagascar, and even now that its strategic importance, in relation to the occupation of India, in which our neighbours were long our rivals, has ceased to exist, such is the force of tradition that probably no step would satisfy more successfully the national pride than a complete conquest of the island.

Its history, in connexion with our European efforts at colonisation, may be sketched in a few lines. Known to the Arabs and Moors, who have left their mark on the island, and mentioned under the name of Magasta by Marco Polo, Madagascar cannot, however, be said to have been discovered till the early years of the sixteenth century, when Lorenço Almeida, the Portuguese viceroy of India, was driven on its coast in 1506. The Portuguese made little attempt to colonise the island. Fever foiled the efforts of the Dutch in this direction. It was not till the middle of the seventeenth century that a European colony of any importance succeeded in settling. In the same year (1642) the French and English appear in the island, the former occupying for many years a military post at Port Dauphin. The effort on our part to develop our influence is clearly shown by the several books, all of an encomiastic nature, which appeared in the seventeenth century, and among which Boothby's "Briefe Discovery of the most famous Island of Madagascar" (1646) may be mentioned as characteristic. Missionary influence, in reality, has been the chief active colonial agent. The Jesuits had settled long before us; indeed, it was not till 1818 that our English missionaries appeared on the scene, four years after Sir Robert Farquhar, Governor of Mauritius,—till then a

* Madagascar is about three times the area of England and Wales.

French colony,—formally took possession of Madagascar as a dependence of that island; since when, however, the French have made several attempts to assert their supremacy, the present promising to be at last successful.

The information respecting Madagascar cannot be said to be abundant. Little beyond the coast has, till late, been really visited by those travellers who have left us any accounts of the island, accounts which in many cases are startling in their incorrectness. There still remains, indeed, much scientific information to be gathered respecting the people, their language, their art, the flora, and the fauna, all of which offer many strange peculiarities. The Malagasys are not of African origin, near as the island is situated to Africa, but of Malay origin, as both their language and their art testify, notwithstanding that 3,000 miles of ocean separate them from their original home. There exist in the island none of the lions, tigers, bears, hyænas, leopards, hippopotami, rhinoceros, or monkeys of the African continent, the animals and birds offering a singular interest not alone from their highly specialised character, but from their evident connexion with the birds and animals found in countries thousands of miles distant.

Coming, however, to the point which more nearly connects the subject with the interests represented in these pages, it may at once be stated that Malagasy art can scarcely be said to offer a vast field of inquiry. That it has been far from properly studied is clear, the information to be gathered is but scant; sufficient, however, to show that it presents little of any particular interest. Its original connexion with the art of the Polynesian tribes is a point almost beyond dispute, so similar are the two in style, thus affording a further confirmation of the ethnographical proofs which connect the Malagasys with the inhabitants of the Malay peninsula and Polynesia generally.

The most trustworthy source of reference on the unwritten chapter of the art of Madagascar may undoubtedly, especially for English readers, be said to be Mr. James Sibree's excellent work, "The Great African Island" (London, 1880). Mr. Sibree is not alone one of that earnest band of missionaries to whom, far more than to our singularly inert Consular body, we owe so much information respecting the wide expanse of the tropics, but he was possessed of sufficient professional ability to take upon himself the design and building of the first Protestant church erected in the island, the adventures and difficulties connected with which,—the spire and tower rise to a height of 80 ft.,—form by no means one of the least entertaining chapters of his book.

Though eminently a nation of an advanced position in the scale of civilisation, the undeveloped state of the Malagasy arts is certainly not a little singular. Ornamentation generally, particularly of an elaborate character, is rare. As for an architectural style, it can scarcely be said to exist, there being throughout the island no buildings of any size except the royal palaces. The purely native house in use among the Hovas,—the tribe which at present holds the chief power,—possesses, it is true, a marked character, with its very high-pitched roof and "horns" formed of the extension beyond the ridge of the crossing timbers; but this style of dwelling, though it still exists, is rapidly being driven out, especially in the capital, by European architectural influences, which the natives have very rapidly assimilated. Within ten years the capital has been almost entirely rebuilt, and the mud and timber huts of the past replaced by buildings formed of sun-dried bricks. Stone is scarcely used in the island, being in most parts difficult to obtain, though Mr. Sibree speaks of having met with a curious series of semicircular monuments, very similar in many features to certain buildings in the Punjaub and north-western provinces of India. In the decoration even of their timber houses, the Hovas would appear to display no power except in the occasional use of a notched zigzag. Interiorly, some of the better houses are painted in a style not unlike, so we are told, the Assyrian wall-paintings,—the natural earths, buff, brown, chocolate, and black prevailing, with a very sparing use of the primitive colours. It is chiefly in the royal palaces, somewhat difficult of access, that these paintings, mostly composed of geometrical patterns, are to be seen.

In general plan the native house is very simple, generally consisting of one large room; among the wealthier classes this disposition being more or less retained in the large central hall with sleeping rooms at each end. In this large room, sleep, cook, and live the entire family, often, as in rural Irish fashion, in company with the friendly pig and fowls. The bed, it may be mentioned, is, however, invariably screened off. In some parts of the island the bed is described as being a most formidable article of furniture, panelled all round, and reaching from floor to ceiling. Previously to the introduction of Christianity one end of the room was invariably regarded as a sacred enclosure, and within this was placed the bed. The floor is strewn with mats. A mortar in which the rice is pounded, a few water-pots, and a primitive fire-place, with a small selection of simple cooking utensils, constitute the chief contents of the ordinary Malagasy's house. In the central provinces, where a hard red clay abounds, most of the houses are built of that material; the clay is laid in courses of about 2 ft. deep, each course being allowed to dry before the next is laid; three upright poles or posts support the high-pitched roof,—the walls, though stout and very durable, not being depended upon for this purpose; the broad tough leaves of the traveller's tree,"* with laths of split bamboos, forming the roof itself. In the southern provinces the houses would appear to be of a ridiculously small size, Mr. Sibree speaking of his 11 ft. tent being positively larger than any house in some of the villages he visited. In the central provinces the villages are often found surrounded by a formidable series of fosses, some 30 ft. deep and 20 ft. wide, not filled with water, but planted chiefly with fruit-trees. In the southern provinces the villages are situated almost invariably on a considerable height, often in very inaccessible spots; in the present more settled state of the island these natural steps against attack are, however, never taken in the formation of new villages. From a rule observed undeviatingly in laying the plan of the house in strict accordance with the points of the compass, it has become the native custom to speak of "north" and "south," "east" and "west," in the same sense as we should use the expressions "right" and "left," "behind" and "before," and Mr. Sibree relates an amusing anecdote of a friend at dinner being told by his host of a grain of rice which had adhered to his beard, "on the north side."

Some curious customs would appear to prevail in the building of a Malagasy house. When the late sovereign's palace was erected all the measurements, we are told, were regulated by the Queen's own *refy*, or fathom, the distance, when the arms were extended, between the tips of her fingers, the smaller dimensions being regulated by her span, a somewhat awkward scale to work by according to European notions.† A further difficulty would appear to have presented itself in the necessity of avoiding in the dimensions all such unlucky numbers as 6 and 8, which, from their sound resembling words signifying "regret" and "enemy," are tabooed. Such superstitions as these are common. The use of level, plumb-bob, and cord are unknown to the Malagasy, and when Mr. Sibree was building his simple Norman Church at Ambatonakanga, he tells us that he had actually to superintend the laying of almost every stone. Each workman quarried, dressed, and laid his own block, the portion upon which he would be engaged being regarded sacredly as his monopoly, an understanding which, on a lengthened absence, led to serious difficulties in the erection of Mr. Sibree's church.

European influences have, however, been received very readily by the natives, and are singularly shown in the direction in which, more than any other, the Malagasys have at all times expended their highest artistic efforts, their tombs; for, though possessing but an imperfect religious belief, the natives, it would seem, have always paid a marked respect to the dead. The memorial stones to be found in the southern portions of the island are finished and elaborate specimens of carving, singularly resembling, so we are told, the Runic crosses to be met with in our northern provinces.

In the various other branches of the industrial arts, the stuffs which the Hova women weave and dye are worthy of mention, the wealthier classes wearing silks and cottons, the slaves linen. The patterns of the native *lamba*, or tunic, worn by all classes, being of the simplest and most tasteful description. As silversmiths and metal workers generally, the native workmen are reported as being very ingenious, with the most primitive tools producing beautiful filigree and delicate chains. The native mats, used for covering the floors and sometimes the walls, are often of very elaborate patterns. Malagasy pottery is, however, primitive both in make and in decoration, a few zigzags, as in the earliest specimens of European art, constituting all the ornament.

In the southern provinces of Betsileo, a slightly more advanced form of art,—always, however, of the same marked Polynesian type,—is to be met with; chiefly displayed in the larger use of carving for decorative purposes, both in the woodwork of the houses and in the utensils of every-day use; gourds, fifes, and tobacco-boxes being largely ornamented with an incised pattern, always geometrical, and filled in with black.

The art of Madagascar, it will be seen, offers, as we have already remarked, only a very restricted field of observation, with apparently few or no features that are not to be found in the art of the Malays and Polynesians. Research may reveal, of course, to the future explorer, some points as yet unremarked, and which may prove of interest to the ethnographical student and the archæologist; but Malagasy art has no lesson to read us, such as each stone of the Parthenon, or a cathedral like that of Amiens, is capable of affording. It is merely interesting as showing us the existence, in the midst of our nineteenth century, of one of the stages passed away thousands of years ago with us, in the development of the art which in Europe has already more than once blossomed forth in the utmost perfection of beauty, to slowly fade away again like a dream at dawn.

* *Urania speciosa*, or *Ravinala Madagascariensis*: in appearance not unlike a palm.

† See p. 287, Sibree's "Great Island," above quoted.

## ON RECENT IMPROVEMENTS IN ARTIFICIAL LIGHTING,

### AND THEIR BEARING ON THE PURITY OF AIR IN ROOMS.*

THE vast improvements which have taken place in the production of artificial light in recent years,—improvements which bear, to a considerable extent, upon the hygienic aspect of the question,—make it especially desirable to bring the subject before the public. The introduction of the electric light has had the result of stimulating invention in gas lighting, and there have been recently introduced new methods of gas lighting which bid fair to retard the universal introduction of the electric light for domestic use.

Every form of matter when sufficiently heated has the power of emitting rays of light, and thus becomes self-luminous. This condition is termed incandescence, and the self-luminous worlds, as the sun and fixed stars, are, doubtless, in a condition of intense incandescence.

All artificial sources of light depend upon the development of light during incandescence. For the illumination of our streets and houses at night we have hitherto chiefly made use of a combustible gaseous combination of carbon and hydrogen, which forms the chief constituent of ordinary coal gas. When this hydro-carbon burns, that is to say when its elements unite with the oxygen of the air, it undergoes partial decomposition and evolves heat. Carbon is separated in the solid state, and floats, in a finely divided and incandescent state, in the interior of the burning vapour, and this constitutes the flame. The presence of these particles of carbon may be easily shown by holding any non-combustible body in the flame, when the carbon in fine powder will be deposited upon it, forming a layer of soot. The combustion of the particles of carbon takes place at the border of the flame, where they are first brought into contact with the oxygen of the air; but if the supply of oxygen to them be insufficient in quantity they escape in a partially unburnt condition in the form of a dark cloud, and the flame is said to smoke. The brightness of the flame is owing to these solid incandescent particles, for the burning gas itself possesses only a feeble illuminating power. It would, moreover, appear that the luminosity of a flame is due to the heat of the flame; and Dr. Frankland has shown us that hydrogen or carbon monoxide, when burned with oxygen under a pressure of from 15 to 20 atmospheres, yields a luminous flame.

No doubt the Bunsen burner gives a smoke-

* A paper by Captain Douglas Galton, C.B., read at the Parkes Museum on the 19th inst.

less and non-luminous flame; although it cannot be said that the flame of the Bunsen burner is in any sense less hot than a luminous gas flame. In the Bunsen burner ordinary gas conducted through india-rubber tubing streams into the tube of the burner. Air enters, however, through an opening as well as through a second opening opposite to it, and mixes itself with the gas in the interior of the tube. If the mixture issuing from the tube be ignited, it burns with an extremely feeble frame, which deposits no soot on bodies held in it. For now oxygen is admitted not only to the border of the flame, but throughout its whole mass, and the carbon is accordingly burnt into carbonic acid before it can separate in the solid form, so that the flame is composed of incandescent gases alone. Its illuminating power is very feeble. The feeble luminosity of the Bunsen flame appears to be due to a number of causes: we have, first, a rapid oxidation of luminiferous material to gases of feeble illuminating power by the oxygen in the admixed air; in the second place, we have the presence of diluting gases, which of themselves reduce the illuminating power; and, thirdly, we have heat withdrawn by the indifferent gases, as nitrogen, and the products of combustion, carbon dioxide and water. We cannot say that the loss of luminosity is due to any one of these causes acting singly. On the other hand, in consequence of the more perfect combustion that takes place, it is used as a heat-producing flame, and its temperature can be still further raised by a short conical chimney supported on six metal arms arranged in the form of a star. If a solid body be introduced into this feebly luminous flame, such, for instance, as a piece of platinum wire, the incandescent metal glows with a brilliant light; and, inasmuch as it is smokeless, it will not destructively act on the platinum in the manner a smoky gas flame will do. The luminosity of a Bunsen's burner can be restored by shutting off the entry of air, either by closing the holes with the finger or by the rotation of a slide which covers them. The light then becomes much more brilliant, with abundant formation of smoke.

The flames of candles and lamps, whether the substance burned be tallow or wax, rape oil or petroleum, do not differ essentially from that of an ordinary gas-burner. The same hydro-carbon gas which is the essential constituent of common gas is the source of light in them. The hot wick which draws up the fluid material about to be burned plays the part of a small gas factory, the produce of which is used on the spot; the only difference being that coal-gas is always purified before it is consumed, whereas the extemporaneous gas of a candle or lamp is consumed without being purified at all. On the other hand, the tallow, wax, and oil contain the carbon and hydrogen in a purer and more concentrated form than the coal from which ordinary coal-gas is made. The flames of candles and of lamps all owe their luminosity to the incandescence of particles of carbon floating in them; and the reason why one description of candle or lamp is more smoky than another is because the supply of air in the smoky one is not sufficient to produce adequate combustion. A petroleum lamp burns, in the first instance, with a dull, murky flame, giving off a large quantity of smoke, but it acquires a high degree of luminosity when the glass chimney is applied, for the presence of the chimney causes a strong draught, supplying the air requisite for the thorough combustion of the gas with which it was previously insufficiently intermingled. The brilliancy of a petroleum flame is thus materially exalted by an increased supply of air, whilst that of a Bunsen's burner, as has just been seen, is almost abolished by the same means. The contrary effects observed in these two cases admit of easy explanation. In the latter instance, the amount of air supplied is so great that scarcely any of that separation of the particles of carbon takes place, which is so necessary in order that a bright light should be produced. But in a petroleum lamp, the introduction of a moderate quantity of air, by effecting the combustion of the superfluous particles of carbon, causes a higher degree of heat, and consequently a more lively incandescence and illumination of the still remaining particles. From this it is obvious that in order to obtain the highest illuminating power of a flame in which hydro-carbonaceous compounds are undergoing combustion, the regulation of the supply of air is essential. This more perfect combustion is also essential to the maintenance of the purity of the air of the room. In a hygienic aspect it is also essential that the compounds used to produce light should be as pure as possible, and during the last twenty years vast improvements have taken place in the methods of purifying gas, so that now the London gas is almost entirely free from sulphur and its compounds.

We will now proceed to consider in what way candles, oil-lamps, and gas, as sources of artificial light, affect the air of a room. The effect caused on the air of a room by combustion is firstly to diminish the oxygen; and secondly to increase the carbonic acid and produce water and ammonia. If the combustion is imperfect, the effect is also to create carbonic oxide and soot, as well as to disperse into the room any impurities which the material which is used for illumination contains, besides the carbon and hydrogen which is necessary for purposes of illumination.

If we look back at the gradations of improvement which have taken place in artificial lighting, we find that each successive step has been of advantage to the purity of air. Probably the earliest known means of lighting was the *torch*, cut from the pitch-pine, and sticky with exuded resin. It gave a large red flame, and volumes of smoke which condensed into small particles of soot, colloquially termed "blacks," which adhere to faces and clothes with surprising determination, and may give some idea of the eminent discomfort experienced in a hall lighted, like the Walhalla, with pine splinters. Substituting a rope for a splinter, and saturating this with pitch or resin, we have the *link* that still, in foggy weather, connects us with the past.

The lamp of the type found in Pompeii probably succeeded these cruder means of lighting. The wick of oakum, or flax, or cotton, dipped in oil or bitumen, gave a smoky flame because no effort was made to bring a sufficient current of air to the wick to assist the combustion. These lamps were often fed with scented oils, which are said to have rendered the air heavy with their perfumes, which shows that they gave out a considerable amount of impurity. You may imagine the state of a room the morning after a symposium, when, perhaps, a dozen lamps had been burning for six hours, smoking fearfully, without the least appliance for the escape of the heavy carbonaceous fumes. Indeed, it was one slave's recognised duty to go round in the morning wiping the sooty pictures and statues.

The Argand burner with its chimney, and the air brought so as to increase the combustion of oil lamps, was a great step in advance, and effected a most marked improvement in the purity of the air of a room.

Candles with a wick made of the pith of rushes and covered with wax or tallow, are mentioned by Martial and Juvenal. These must have resembled the smoky rush-light of our more immediate ancestors; and the tallow candles which many of us remember as of yesterday diffused impurities in the air far greater in proportion to the light they afforded than any modern form of light. The last fifty years have witnessed vast improvements in the wicks and in the materials of candles, so that their smokiness has been gradually much reduced. Indeed, as regards the contamination of the air of a room, it may be accepted as an axiom that the more imperfect the combustion in any source of artificial light, the more deleterious the effect on the air of the room. We complain of gas, but if we were satisfied with the same amount of light in the case of gas which we obtain with candles or lamps, we should not find the vitiation of the air more inconvenient with one than with the other.

An experiment mentioned by Mr. Clegg in his treatise on the manufacture of gas may be mentioned here in illustration of this. The flame of coal-gas, and the flames of several combustible bodies that gave an amount of light equal to it, were burned separately in given quantities of atmospheric air, and the times were noted at which the flames were extinguished by the contamination of the air. The following were the results:—

| | Minutes. |
|---|---|
| Colza oil was extinguished in ..... | 71 |
| Olive oil ,, ,, ..... | 72 |
| Russian tallow ,, ..... | 75 |
| Sperm oil ,, ,, ..... | 76 |
| Stearic acid ,, ..... | 77 |
| Wax candles ,, ..... | 79 |
| Spermaceti candles ,, ..... | 83 |
| Coal-gas (13 candles) ,, ... .. | 98 |
| Cannel gas (28 candles) ..... | 152 |

The preceding numbers may be taken to indicate the comparative salubrity of the several illuminating materials, from which it appears that the atmosphere of a confined room, lighted by cannel gas, would support life twice as long as the atmosphere of the same room lighted equally by tallow candles. Nor does the complaint that is frequently made of the heat of rooms lighted by gas afford a much better foundation for an objection to gas lighting than its assumed insalubrity. The fact may be true that a room lighted by gas is hotter than when lighted by candles, but the cause is to be attributed, not to the greater heat-giving power of the gas, but to the greater illumination when gas is employed. If persons would be satisfied with the same dim light to which they are accustomed when burning candles, or if they would increase the number of the latter so as to equal the light of the gas flame, the heat given out would be found to be less when burning gas than when burning lamps or candles. It has, indeed, been proved by experiment that the combustion of colza oil produces nearly twice as much heat as the flame of cannel gas of the same standard of luminosity, and that in comparison with ordinary thirteen-sperm-candle gas the proportionate amounts of heat are as 78 to 68. A room lighted by a large moderator lamp burning colza oil is perceptibly heated quite as much as by a gas flame that gives a larger amount of light.

The conditions which affect the purity of the air of a room are, however, not all the same in the case of lamps or candles as those which prevail when gas is used. In the case of the lamp or candle, the wick either draws up the hydrocarbon on which it depends for its light by capillary attraction, or else this hydrocarbon is forced up the wick at a uniform rate by an equable pressure. In the case of gas it is usually different. The gas comes from a street main, in which the pressure is constantly varying, partly in consequence of the continual variation which takes place in the number of lights in use. For instance, if a large shop suddenly lights up its establishment, a sudden decrease of pressure would occur in the neighbouring houses. In order to obtain sufficient light in a neighbouring house, it might be necessary to turn the cock of the burners full on. When the lights in the shop were extinguished, the pressure would be suddenly increased, and the gas would be forced through the burners more rapidly than it could be consumed; consequently much impurity might be forced into the house, in the shape of unconsumed gas. It is therefore necessary to regulate the pressure at which the gas reaches the burners, and many of the complaints of the impurity of the air of a room, caused by gas, arise from this want of regulation of pressure. The pressure can be regulated by the use of a governor, placed either at the meter or in proximity to the light itself.

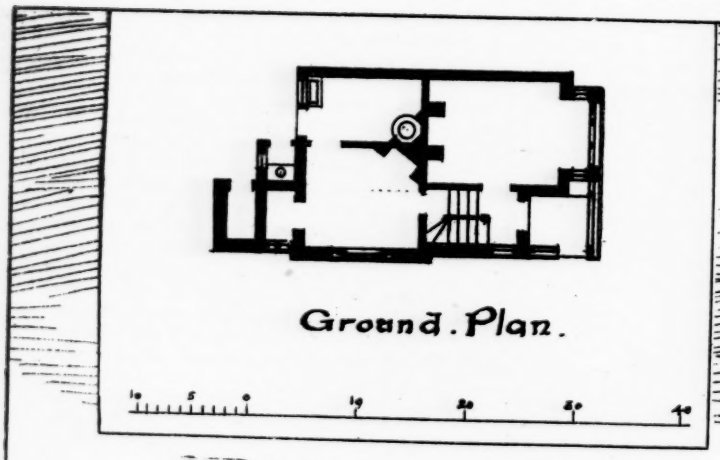
From these various considerations it is apparent that the more perfect the combustion is in artificial light the less will it affect the purity of air in a room; but, so long as the light is burned in contact with the air of a room, the air will be more or less affected.*

## DISCOVERY OF FRESCOES AT ROME.

IN the Capitol at Rome two Gothic rooms containing fine frescoes of the Umbrian school towards the end of the fifteenth century have been discovered. An inscription indicates the painter to have been "Pietro Spagnolo di Micciliello," probably the father of "Giovanni Spagna," whom Vasari mentions as a pupil of Perugino, and as envied even by Raffaelle.

**New Town-hall for Westminster.**—On the 19th inst., the new Town-hall for Westminster was opened by the Duke of Northumberland. The building, which is a costly one, has been erected to serve the needs of the parishes of St. Margaret and St. John, Westminster, from the designs of Messrs. Lee & Smith, architects, to whose design the first premium was awarded in competition. The accommodation provided includes a large hall capable of seating 1,000 persons. A view of the building, accompanied by a plan of the principal floor, was published in the *Builder* nearly three years ago (see vol. xxxix., pp. 449, 451: Oct. 9, 1880).

* To be continued.

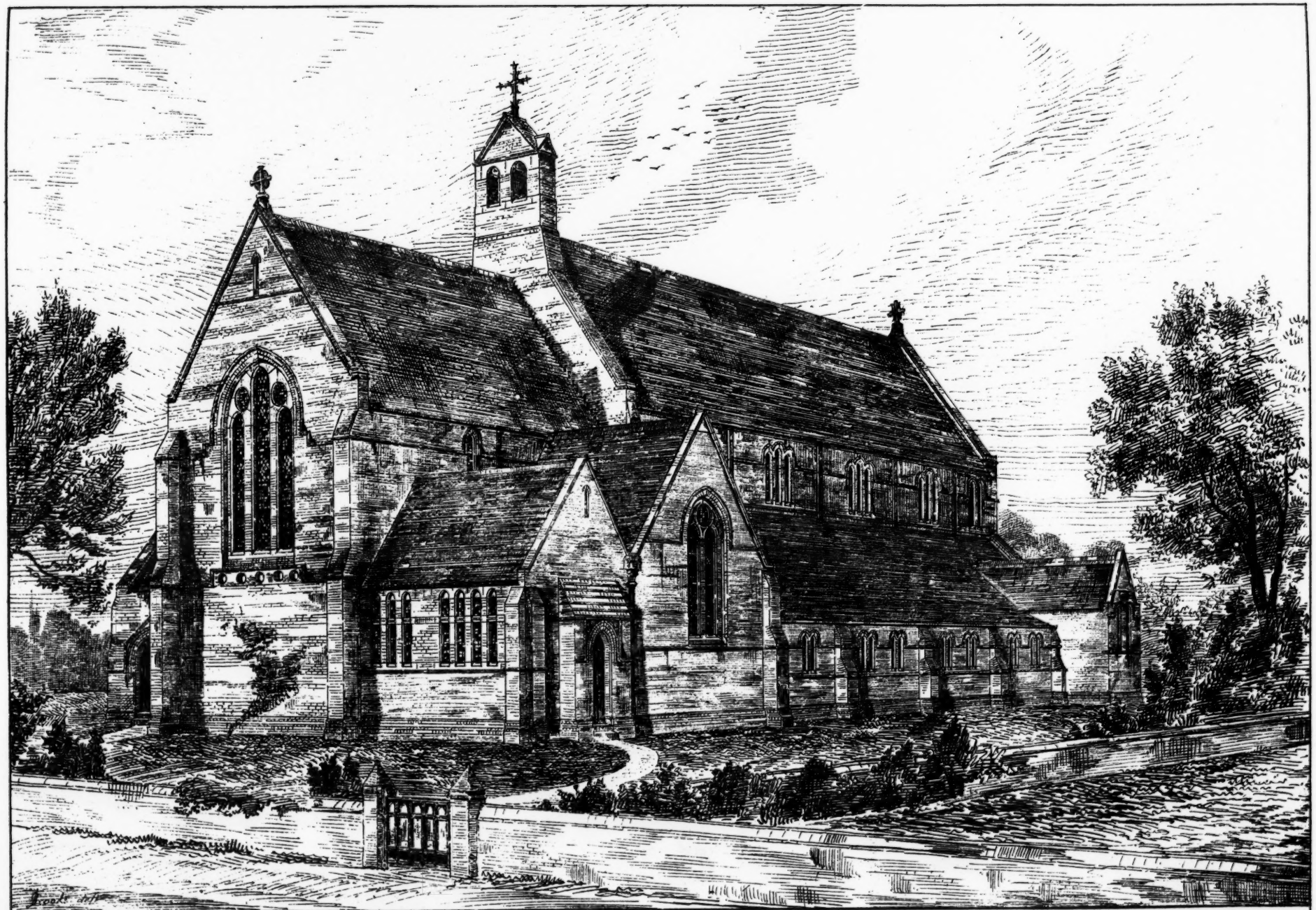



# Lodge: Mount-Park-Estate: Harrow-on-the-Hill:

Whiteman & Bass, *Photo-Litho.* 236, High Holborn.

MESSRS. HIGGS & RUDKIN, ARCHITECTS.

Wyman & Sons, Printers, Gt Queen St.



HALL + SAINTS : DISTRICT : CHURCH + IPSWICH + Absit ut Gloriar nisi in Cruce + 1883

Whiteman & Bass, *Photo-Litho* 236, High Holborn

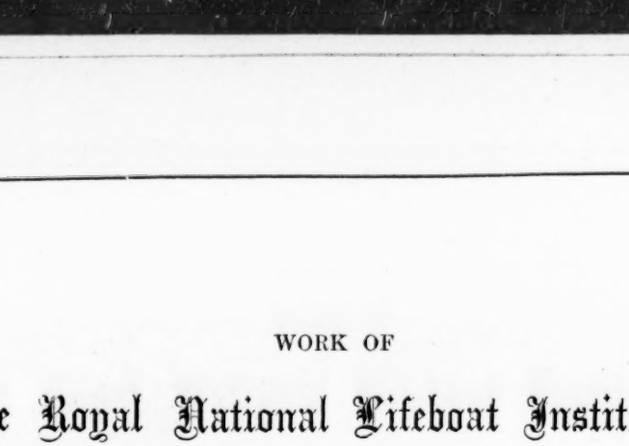
MR. J. M. BROOKS, ARCHITECT.

Wyman & Sons, Printers, C^t Queen S^t

WORK OF

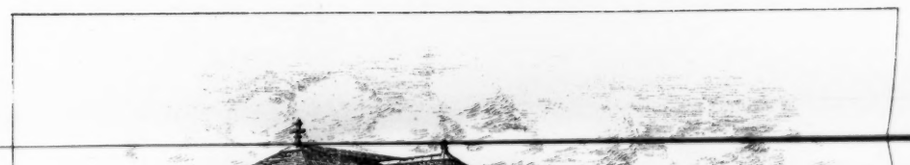
# The Royal National Lifeboat Institution.

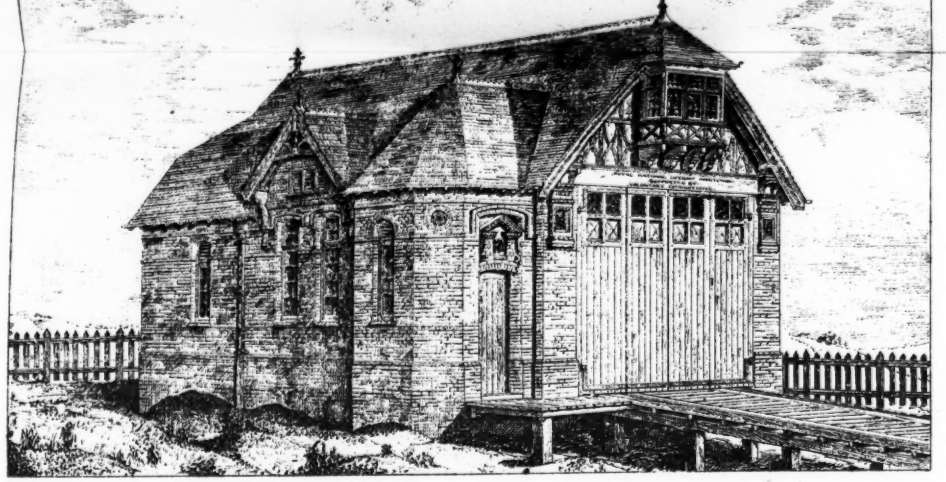
MR. CHARLES H. COOKE, F.S.A., ARCHITECT.



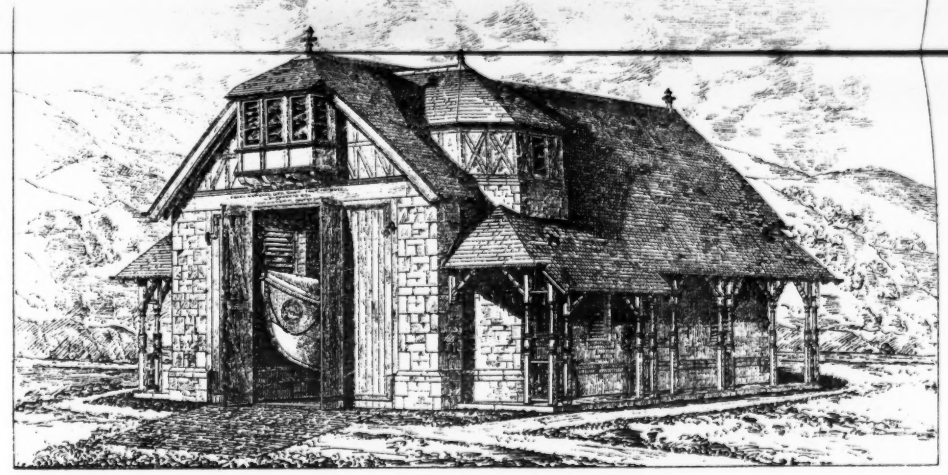
TORQUAY, SOUTH DEVON.

HASTINGS, SUSSEX.

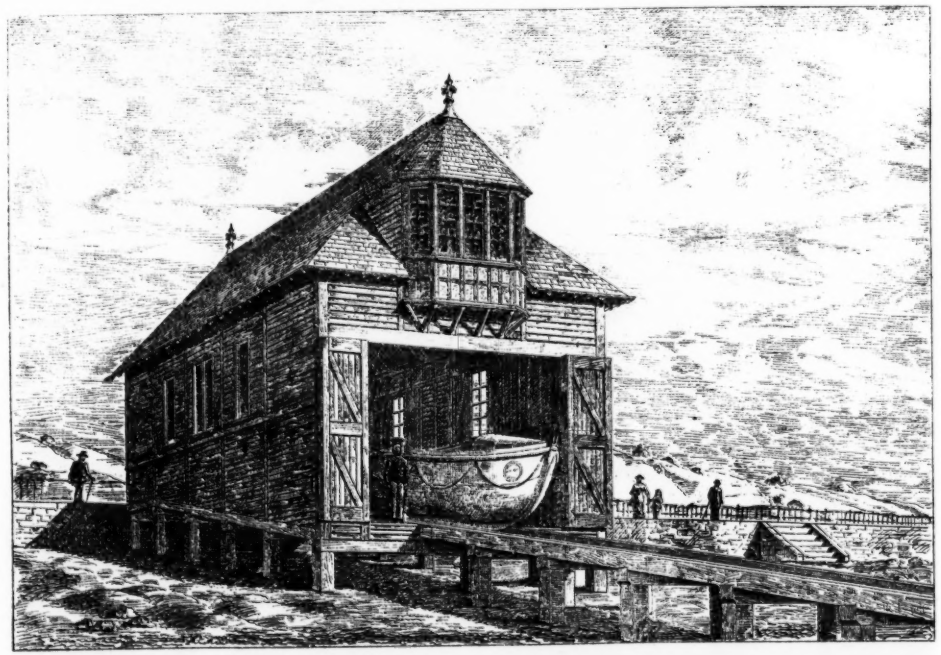




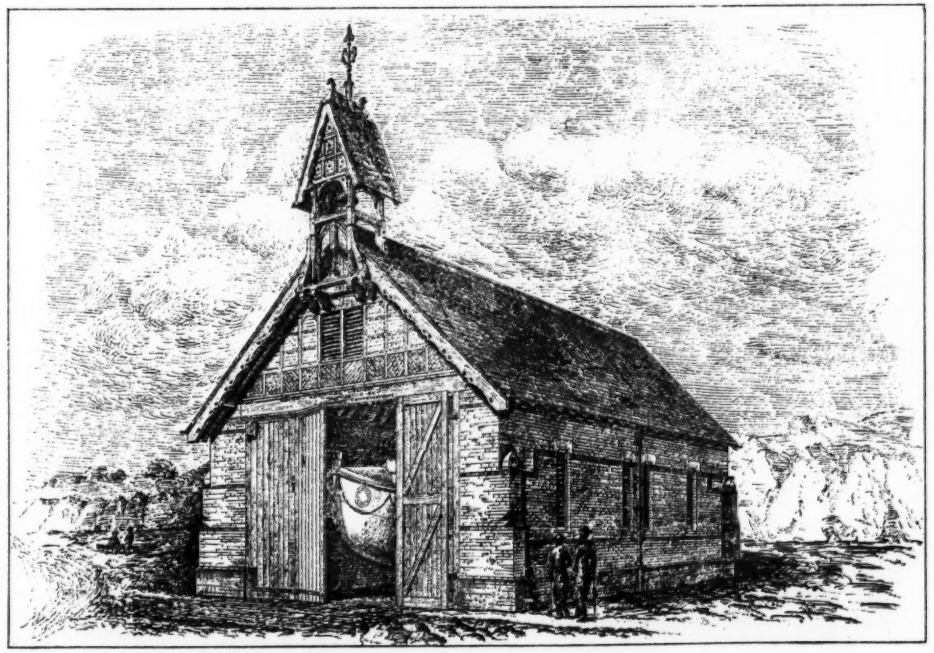
ST. ANNE'S ON-THE-SEA, LANCASHIRE.



NEWCASTLE (DUNDRUM BAY), CO. DOWN.



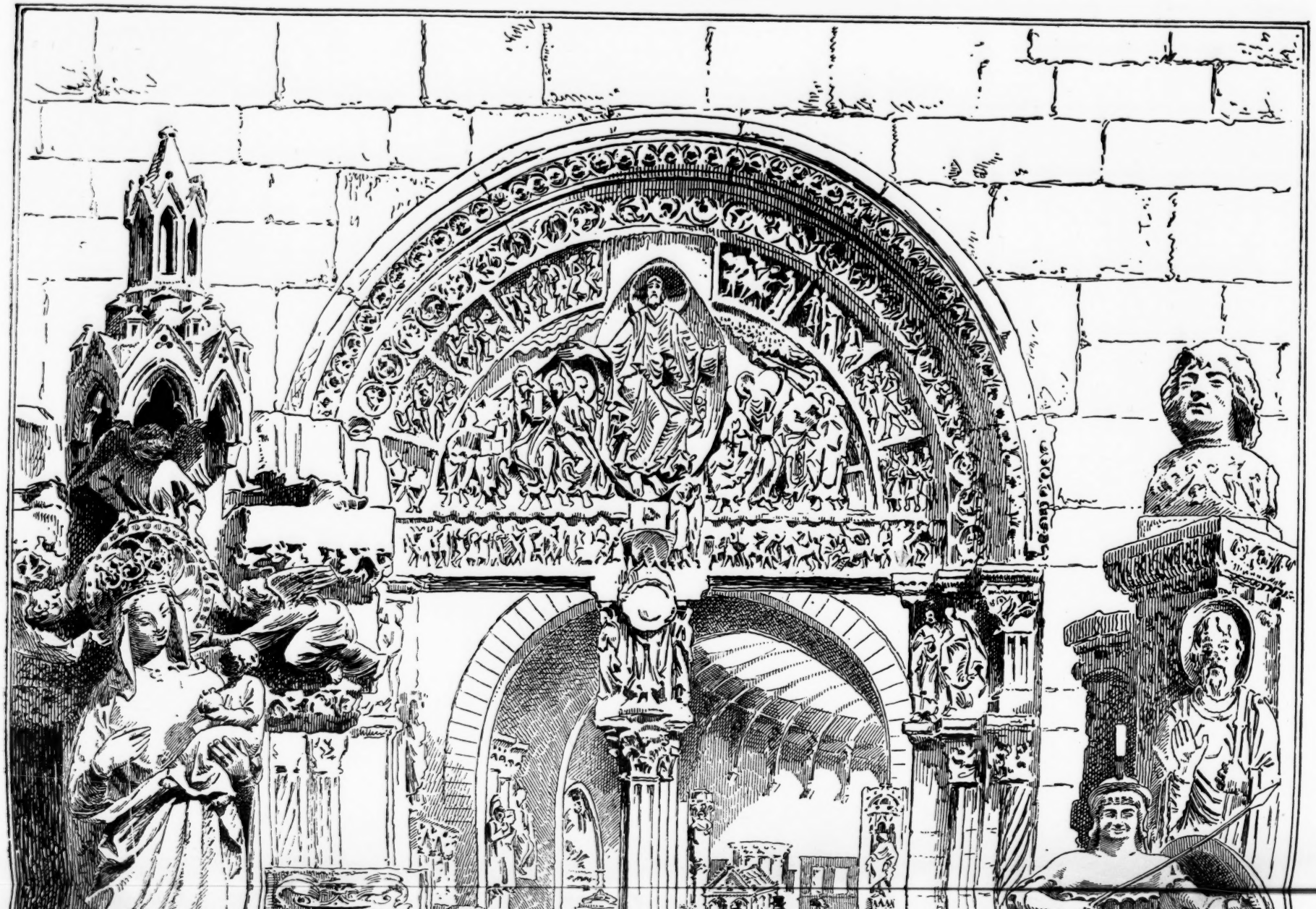
FLEETWOOD, LANCASHIRE.



HORNSEA, YORKSHIRE.

Whiteman & Bass, *Photo-Litho* 236, High Holborn

Wyman & Sons, Printers, G^t Queen S^t



The Gilded Virgin of Amiens.
The Archer from the Temple of Ægina.

Renaissance Corbel.

Doorway from the Cathedral of Vezelay.
Tomb of Francis II. and of Margaret de Foix.

Fragment of the Cathedral of Arles.
Minerva, from the Temple of Ægina.

THE MUSEUM OF COMPARATIVE SCULPTURE, IN THE PALACE OF THE TROCADÉRO, PARIS.

## ROYAL NATIONAL LIFEBOAT INSTITUTION.

### LIFEBOAT HOUSES.

In the early days of this Institution, when expense was a primary consideration, the houses in which its lifeboats were kept were, for the most part, little better than sheds, contracted in size, incomplete in interior fittings, and as inexpensive as possible in construction. As the popularity and means of the Institution, however, increased, and its stations multiplied, many of them being at watering-places and important sea-coast towns, it was felt desirable not only to provide lifeboat-houses of larger size, and of a more complete and tenable character, well ventilated, and with every convenience for the stowage and care of the many valuable articles comprising a lifeboat's complete equipment, but also, when situated in the neighbourhood of towns and places of public resort, to give them a more or less ornamental, or at least seemly, exterior appearance, more especially in cases where legacies or donations of large amounts had been specially left or given to the Institution to provide a complete lifeboat establishment.

It is difficult, and scarcely necessary, to create much variety in these houses for so simple and practical a use, requiring large doorways for the ingress and egress of the lifeboat at one or both ends; but in some cases a projecting "look-out" window is placed in the loft, giving a slight variety to the gable-end. Convenience, durability, and ample ventilation are the chief desiderata, and the average size of the boat-houses is 42 ft. by 20 ft., but in some places much larger. In many cases, owing to the peculiar position of the site on which the house has to be placed, it is necessary to construct a "slipway" from the house to the sand or beach, frequently as far as low-water. These slipways are sometimes of wood on piles, as at Fleetwood, and others are of stone. At Great Grimsby, in the outer harbour, the house itself is placed on the slipway, the fall being about 20 ft., and a length of about 200 ft., built upon piles, the upper ones between 40 ft. and 50 ft. long. The slipway at Fleetwood, shown on the illustration, is about 170 ft. long, and that at Penmon, in Anglesea, 300 ft. long.

We give illustrations and brief descriptions of a few of these unpretending but useful edifices:—

*Hornsea, Yorkshire.*—This house is built of brick, and has a bell-turret, with a bell, to call the crew together. This station was formed mainly through the exertion of Mr. Cristopher Brown, the honorary secretary of the Settle branch.

*Newcastle (Dundrum Bay), Co. Down.*—This house, which was erected for the reception of the *Farnley* life-boat, the gift of Mr. E. Armitage, R.A., is built of Whin stone.

*Fleetwood, Lancashire.*—This house, which is built of wood, with the boat, is the gift of a gentleman, a native of Lancashire.

*St. Anne's-on-the-Sea, Lancashire.*—This is built of red brick, with red tiled roof. The whole expense of this station was borne by Mr. James Chadwick, of Prestwich.

*Torquay, South Devon.*—The material used for the walls of this house is limestone. The boat provided for this station has been furnished with a transporting-carriage, so as to make it available for Babbicombe Bay on the east side of Torquay, as well as for Paignton, on the west side. The cost of this new life-boat establishment was defrayed by Mrs. Brundret, of Manchester.

*Hastings, Sussex.*—This house is built near the Fish-market, upon the extended esplanade made by the Corporation for that purpose, and is exposed at times to very heavy seas. The house is built of native stone, with Doulting stone dressings, and the turret is to be used by the Corporation for a light for fishermen, to guide them as to landing. The cost of this station has been generously defrayed by Mr. Charles Arkcoll, of Chatham, in memory of his late father.

The various lifeboat houses erected from the designs of Mr. Charles H. Cooke, F.S.A., of Burlington-chambers, 180, New Bond-street, the architect to the Institution, now number nearly 300, the cost of each house varying from 350*l.* to upwards of 700*l.*

In the year 1865 a vote of thanks, on vellum, was presented to Mr. Cooke, the honorary architect to the Institution, for his long and valuable co-operation; and in August of last year, after twenty-five years of service had been completed, it was resolved "That the best thanks of the Royal National Lifeboat Institution be presented to Charles H. Cooke, esq., F.S.A., in acknowledgment of his valuable services during the past twenty-five years, in building no less than 265 lifeboat-houses on various parts of the coasts of the United Kingdom."

Last year 741 lives were rescued by lifeboats, in addition to twenty-three vessels saved by them, giving a total of 29,608 lives saved by the lifeboats of the Society or by its help since its formation.

## THE MUSEUM OF COMPARATIVE SCULPTURE IN THE TROCADÉRO, PARIS.

In accordance with promise in our last number, we give a view of another part of the Museum of Comparative Sculpture, which has been formed with so much success in the Palace of the Trocadéro in Paris. As in our first view, some of the subjects are named on the print.

## VILLA: MOUNT PARK ESTATE, HARROW.

In our present number we give a perspective view of a villa now in course of erection on the highest part of the Mount Park Estate, Harrow. The nature of the site suggested placing the principal rooms at the back, where they command extensive views southwards for from fifteen to twenty miles. The walls are built of red brick, relieved by half-timber work, part of which is filled in with concrete and rendered, and part covered with hanging tiles, the roof being covered with Broseley tiles. The house contains, besides the usual offices and cellars, three large reception-rooms and a billiard-room. There is a spacious and well-lighted hall, with a broad staircase of pitch-pine, leading to the upper floors, which contain eight good bedrooms besides bath and dressing rooms. The house will be fitted throughout with electric bells. The work is being carried out under the superintendence of the architects, Messrs. Higgs & Rudkin, of 68, Lincoln's Inn-Fields.

## ALL SAINTS' DISTRICT CHURCH, IPSWICH.

The view of the above church, which we illustrate, was submitted in a competition, the professional referee being Mr. Ewan Christian. It was proposed to build it of red brick, with Bath stone dressings, the roof to be covered with sea-green slates. The accommodation was for 838, the cost not to exceed 6,000*l.* The object was to design a plain and dignified building, as the funds at disposal were very small. A tower and spire was an impossibility. The church stands on a piece of ground bounded on three sides with roads: so therefore it was desirous of obtaining not only entrances at the north and south porches, but also at the east end of the transept. The architect is Mr. J. Martin Brooks, 35, Wellington-street, Strand.

## THE ROYAL ACADEMY.

### COUSINS ANNUITANTS.

Notice is given that the President and Council of the Royal Academy will proceed to elect, on Tuesday, August 7th, one or more Cousins Annuitants. Applicants for the annuities, which are of the value of not more than 80*l.*, must be deserving artists, painters in oil or water-colours, sculptors, architects, or engravers, in need of aid through unavoidable failure of professional employment or other causes. Forms of application can be obtained by letter addressed to the Secretary, Royal Academy of Arts, Piccadilly, W. They must be filled in and returned on or before Saturday, August 4th.

**Carlisle Plaster.**—It is a very constant complaint in the building trade that a good reliable plaster is rarely to be met with. Some plaster will set so quickly that there is no time to shape it as required before it has hardened again. The plaster commonly sold will often soften once or even twice after once "set," spoiling, consequently, the shape of the mouldings it is used for. To obviate these serious disadvantages, Messrs. E. & C. Braby have prepared a plaster which they guarantee to possess neither of the above defects. They give the names of many large firms who use this plaster. It certainly seems to us a superior material.

## BUILDING TRADES EXHIBITION IN MANCHESTER.

The first of an intended series of annual building trades' exhibitions for Manchester was opened on the 19th inst. in St. James's Hall in that city. The exhibition, which appears to be of a thoroughly representative character, has been organised under the direction of an executive committee of sixteen members, of whom one-half are architects, Mr. Alfred Darbyshire acting as Consulting Architect and Director to the Committee. The spacious area of the hall is crowded in every part, and much credit is assigned to Mr. Darbyshire, and also to Mr. W. Ogden, the secretary, for the arrangements they have made. There are seven avenues, each distinguished by a letter of the alphabet. On Stand 1 in Avenue A, Mr. Malcolm Macleod, of Barton House, Deansgate, shows some samples of granite, metallic cement, mosaic concrete, and hand-painted tiles. Messrs. Burke & Co., of Newman-street, London, and Rue St. Luc, Paris, exhibit some fine specimens of marble mosaic for pavements and wall decoration. In this avenue, Messrs. Frederick Walton & Co. have on view specimens of their Lincrusta-Walton,—the "Sunbury wall decoration,"—for which they have been awarded nine prize medals. This material is damp-proof and water-proof, and can be washed as often as may be necessary. It can be painted and decorated in any style or colours, and can be re-painted or re-decorated as required to suit alterations of furniture or hangings. An interesting show is made by Messrs. W. Barningham & Co., Pendleton Ironworks, Manchester, of sections of wrought-iron beams, girders, joists, for constructive building work, railway rails, points, tramway metals, and turn-tables. Mr. J. Hilton, of Oxford-street, Manchester, exhibits some specimens of green, red, and grey polished granite. On the next stand,—No. 11,—the Bessbrook Granite Company, Limited, show some specimens of blue granite, and also samples of Scotch, Irish, and Shap granite. Messrs. Carter, Johnson, & Co., St. George's Works, Worcester, have on view some church pavements of Mediæval tiles; and close by Mrs. S. Davies, of Princess-street, exhibits specimens of different kinds of rock asphaltes, polished marble mosaic concrete for floors, hearths, and fenders. At Stand 20, Mr. J. W. Hindshaw, of Gartside-street, shows a number of specimens of panelled ceilings and cornices in fibrous plaster; also a model of a chimney-piece. In Avenue B, Messrs. W. H. Bailey & Co., of Salford, show a modern turret clock in motion, and they also exhibit, amongst other things, a number of cement testers and other instruments for testing the strength of building materials. Mr. D. D. Fenning, Booth-street, Manchester, has on view specimens of granite, and Mr. W. Campbell, Cannon-street, shows samples of ropes, sash-cords, and similar goods used by builders. Messrs. Wilcock & Company, Leeds, have a capital display of terra cotta and faïence panels for wall-decoration. At Stand 36, Messrs. J. & H. Patteson, of Oxford-street, Manchester, have on view some marble chimney-pieces and examples of marble mosaic concrete for wall and floor decoration, enamelled and painted tiles, German encaustic tiles and other things. One of the most interesting stands in Avenue C is that of Messrs. Doulton & Co., of Lambeth, who show a large oak mantelpiece, inlaid with panels illustrated with hand-painted scenes from Shakspeare, and fitted with a tile-hearth and glazed terra-cotta fender. They also exhibit a number of radiating tile-stoves, and various mural and stove decorations in tile work. Near the centre of the hall Messrs. Elkington & Co. have a display of silver and electro-plate, including *fac-simile* reproductions from the British and South Kensington Museums. On the adjoining stand (No. 41), Messrs. A. Kenrick & Sons, iron-founders, West Bromwich, exhibit a variety of ironwork for building purposes. The next stand is occupied by Mr. A. Newman, of Maddox-street, London, who shows a remarkable assortment of wrought ironwork, including many specimens of flowers, and ornamental scroll-work. A novelty in the way of house-building stands at one end of this avenue. It is a small house consisting entirely of paper, excepting a few strips of wood. The paper is perfectly waterproof. The largest, and certainly one of the most interesting collections in the exhibition, is that of Messrs. Holme & Co., East India,

China, and Japan merchants, and wholesale importers of Oriental art-work, London. A "pavilion and Oriental court" for this firm have been erected at one end of the building. It is arranged as an Eastern bazaar, and divided into sections, each of which is named after an Eastern town in which the goods shown are for the most part made or collected, or from which they have been exported. The goods shown include Japanese furniture, embroidery, and old pieces of pottery, Chinese furniture, richly carved, and old Chinese pottery and bronzes; Indian, Arabian, and Turkish furniture, and ornaments in endless variety. Above the pavilion is a small Cairène room, partly constructed of woodwork from an old house recently taken down in Cairo, and furnished entirely in Arabian style. Messrs. Elliott, Alston, & Olney, of Deansgate, Manchester, exhibit a large collection of marble and other chimneypieces, with tiled hearths. Another notable exhibit is that of Messrs. John Statham & Sons, of Pendleton, and Messrs. Earp, Son, & Hobbs, of Lower Mosley-street, consisting of the new choir-stalls which have been made for St. Mark's Church, Worsley, from designs furnished by Mr. R. Knill Freeman. The stalls are of solid oak and are beautifully carved, and finished generally in a highly artistic manner. The Papier-Mâché Company, of Wellington-street, Strand, London, have a good show of chimneypieces in wood and papier-mâché, samples of dados, bas-reliefs, fluted pilasters in fibrous plaster, mouldings, and other details. They also have samples of Adam, Jacobean, and Gothic ceilings. Messrs. Leech Brothers & Hoyle, ironmongers, of Old Millgate, Manchester, exhibit marble mantelpieces, lavatories, and kitchen ranges. There are also many exhibits of articles for cooling, heating, and for sanitary purposes. Not the least interesting exhibit is that of Mr. J. Reilly, the proprietor of the hall, who shows a valuable collection of medallions and panels in *repoussé* brasswork, with heads in relief of dramatists, painters, poets, and warriors. Some of the medallions are 20 in. in diameter. There is an interesting series of some 250 photographs sent by Mr. Harry Hems. Mr. Hems contents himself by exhibiting samples of recent works only, and nothing represented by him at this exhibition dates back more than two years. The collection embraces views of public buildings in all parts of the country, and numerous designs for churches, town-halls, schools, and mansions.

A *conversazione* was held in the building in the evening, during which the Mayor of Manchester (Alderman Hopkinson) opened the Exhibition. His worship congratulated Alderman Heywood and the executive committee on the result of their earnest and persistent labours, which had brought together such an interesting exhibition. They would all be struck with the usefulness of the productions. Human ingenuity seemed to find for itself so many paths of invention. Our mature civilisation was expressing itself in new wants year by year, and those wants were met by a display of ingenuity and resource such as was unknown in former times. Especially would they be struck with the facility with which many beautiful objects were reproduced, so as to bring them within the reach of a class of society who, years ago, never dreamed of having the enjoyment of such beautiful objects. It was pleasant for them to see that while true art remained as it did in former times, that was to say, it no more than came up to the level of the individual work of past ages or classical times, we had side by side with it the reproduction of objects in cheap materials or by a mechanical process, so as to bring them within the compass of a very large number of people. He thought they had an educating effect in that.

Alderman Heywood, in moving a vote of thanks to the mayor, said much credit had been given to him and the committee for the getting together of that exhibition, but he must say that the credit belonged to Mr. Darbyshire, for it was owing to the energy and great ability he had displayed that they secured such an interesting collection.

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**Sandgate and its Convalescent Home.** The secretary of the Home is very much obliged to us for our mention of it [p. 39, *ante*], but, we have not said quite enough; we have not stated that the offices of the Institution are at 98, High-street, Homerton. Whenever we receive a letter of thanks it is usually to induce us to say something more.

## NON-COMPLETION OF CONTRACT WITHIN SPECIFIED TIME.

THE DIRECT SPANISH TELEGRAPH CO. *v.* SHEPHERD.

THIS action was tried on July 20th before Mr. Justice Williams and a common jury, at the Royal Courts of Justice, and was important to contractors as an instance of the measure of damages in case of the non-completion of a contract by a fixed date. Mr. Kemp, Q.C., and Mr. E. S. Roscoe were the counsel for the Company, and Mr. Upjohn for the contractor.

The action was brought in respect of offices at Leadenhall-street buildings, the third floor of which was to be ready and entirely completed by the 14th October, 1882. The plaintiff's witnesses stated that it was in fact the middle of November before it was entirely completed. They gave as instances of the unfinished state of the building on 14th October, that the tiles in the passages were only partially laid; that there were only temporary balusters on the staircases; that the latter in places were covered with planks; and that there was no gas in the offices. For damages they claimed the extra rent paid for temporary premises, expenses of double removal, extra charges of the contractor who fitted up their new offices owing to length of time in taking in the fittings through the unfinished state of the building, and similar items.

The defence was that the building was substantially completed, and, if not, that the damages claimed were excessive and unreasonable.

Mr. Justice Williams, in the course of the case, pointed out that small and structural details would not be ground for such an action, but that the matters relied on were substantial items. The jury at once found a verdict for the plaintiffs for the full amount claimed.

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## BRISTOL MASTER-BUILDERS' ASSOCIATION.

THE ANNUAL OUTING.

THE members and friends of the Bristol Master-Builders' Association held their annual outing last week. It was declared one of the most enjoyable trips the Association have yet taken. The party, numbering about sixty, left Bristol by the 7·30 a.m. train for Chepstow, and reached the latter place just after nine. From Chepstow they started in brakes for the ruins of Raglan Castle, which were reached after a delightful drive of some fourteen miles. A lunch was laid in a portion of the ruins, and then Mr. John Cuxson (custodian of the castle) conducted the excursionists over the ruins, and, in an interesting manner, gave a short *resumé* of the history of the castle. On returning to Chepstow the company sat down to an excellent dinner at the Beaufort Arms. The chair was taken by Mr. A. Krauss (the president of the Association), and the vice-chair was occupied by Mr. Humphries.

The usual loyal and patriotic toasts having been honoured, Mr. Jones gave "Success to the Master-Builders' Association."

The Chairman, in replying, said that their trade was one of the most prominent in the country, and he did not think they had been worse off than other tradesmen. Let them be of good cheer for the future: after a season of lean years there would return a season of fat years, and they would reap the benefit of trade being more successful than at present. He hoped that next year the president would be able to give a better report of trade than at present. He believed that within the next twelve months there would appear a better scheme for a new railway than the last one.

Mr. W. H. Cowlin also briefly acknowledged the toast, and in eulogistic terms proposed the health of the President, who returned thanks.

Mr. Benson proposed "The Trade and Commerce of Bristol." He could not congratulate them on the state of trade, but they must all hope that it would improve and that they would have better times in the future. There had been several schemes for improving the city of Bristol, and they had heard a good deal of the "dockisation" of the River Avon, and the members of the Bristol Corporation appointed a committee for the purpose of inquiring into the practicability and desirability of "dockisation." The committee was composed of earnest and able men, and they had issued a report, and if its value was measured in comparison with the length of time it had taken to consider the subject, it must be very valuable indeed. The result of the report was that "dockisation" was not only practicable, but that it was desirable. The question, however, had for the present to be effectually shelved. While Bristol people had been devising a scheme for the benefit of the city, the people on the other side of the river had taken away the trade from them.

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## THE PARIS INDUSTRIAL EXHIBITION OF 1884.

FOLLOWING out the idea which has already found an expression in 1880 and 1882 by the special exhibitions of metals, tissues, movable woodwork, and paper, the Union Centrale des Arts Décoratifs has arranged for next year a display of stone, building wood, plastic products, and glass.

It will thus be seen that the general principle to be adopted is the illustration of all that concerns the building of a house, from the bricks to the ornamentation in the decorated *faïence* work, and from a simple pane of glass to brilliant stained-glass windows and mosaic enamels. Wood had already figured at the Exhibition of 1882, but it was then considered only with respect to its uses in furniture, while in next year's display it will be logically grouped with stone and the other fundamental substances chosen for illustration. Thus, for the first time (as the official programme remarks), there will be represented in an instructive *ensemble* nearly all the industries with which an architect is brought into connexion. Metal work is, however, omitted, as this subject was fully dealt with in 1880.

It is proposed to invest the exhibition of architectural models, &c. with such features of interest as will allow of the general public appreciating the illustrations put before them. The remark is made by the executive committee that this art (which is the key of all others) is presented at the *Salon* every year in a cold and unattractive form. The initiated can understand the plans, elevations, and sections placed before them, but the bulk of the visitors pass by unheedingly. It is argued that employing, as it does, all kinds of decorative processes, architecture can very well furnish the elements of a new and special exhibition.

As it is impossible to transport edifices and walls, it is contemplated to join to the views and drawings such mouldings, reduced models, specimens of stone and wood, sculptured marbles, plaster casts, specimens of carpentry, joinery, and wood carving, &c., as may serve to fitly illustrate each subject. In addition to these aids to representation, photography will be employed to reproduce the main features or various special details of architectural masterpieces.

As a sequel to the exhibition of wood and stone, an important space will be devoted to the exhibition of tools and machinery, as well as to the illustration of the various industrial processes connected with building. Motive power will be freely applied in order to facilitate to the utmost the demonstration of this important adjunct of constructive art.

A technical library will form a leading feature of the exhibition, and the Society is even now prepared to receive contributions, which will be duly classified. A request has been addressed to all connected with architecture, &c., to send descriptions and full titles of any curious or old works relating to the art or to the kindred arts of pottery, glass, enamelling, and mosaic work. Publishers will also be allowed to exhibit works of interest, by conforming to the general regulations of the Exhibition.

The system of classification will be as complete as possible, and the executive committee expresses the hope that it may be found possible out of the ample elements which are expected to be grouped together to form a museum for the purpose of assisting in a permanent manner the researches of the architect and contractor in matters bearing on their respective branches.

In concluding their preliminary remarks the committee invite attention to the fact that the exhibition is of an international character, and that its doors are open to the foreign artist and manufacturer as well as to native talent and industry. The hope is expressed that the important manufactures which compete with those of France will be represented, stress being laid on the ultimate advantages of such friendly rivalry between nations.

## THE BERLIN MUSEUM.

THE Prussian Government has at length resolved upon carrying out a scheme which has for some time been contemplated for erecting upon the Museum Island,—a piece of land so called from its position, surrounded by the river Spree, close to the Berlin Museum,—a new edifice, which is intended to form an annex or new wing of the existing Museum building. The invitation to the competition for designs for the structure has already been issued by the Prussian Minister of Education, and is addressed exclusively to German architects. General sketches are required, and are to be accompanied by written explanations as to details. The plans of site are to be on the scale of 1 to 1,000, the ground-plans 1 to 500, and the necessary views and sections 1 to 250. Competitors may give their names or compete anonymously. The competition closes on the 1st of February, 1884. Intending competitors who desire more information than is contained in the programme may obtain it by communicating, before the end of August, with the Museum authorities. The jury which will adjudicate on the designs sent in will consist of five of the leading officials of the Museum, and six architects. The four best designs will be rewarded with four equal premiums of 5,000 marks, or 250*l.*, each; and the Government further reserves to itself the right to purchase any of the other projects which it may deem desirable, at 1,500 marks each. It is understood that this is intended only to be a preliminary competition, and that it will be followed by a second and final contest for the definitive designs, unless some one of the first series of projects should satisfy the jury. A German professional organ remarks, with great satisfaction, that this forms an entirely new departure in the history of architectural competitions in Germany, and recommends the example of the Prussian Government in this matter as one worthy of general imitation. Great praise is also bestowed on the authorities for inviting intending competitors to a conference with the Museum officials for the purpose of enabling the latter to supply any details not contained in the published programme descriptive of the character of the architecture and interior accommodation required in the new buildings. Owing to the generally defective nature of these preliminary descriptions, competitors have constantly been misled or left in the dark as to some of the most essential points of the problem they have had to deal with. The detailed programme of the new competition has not yet appeared, but the preliminary announcement has created a high degree of interest in architectural circles in Germany, and there is little doubt that the competition will prove amongst the most important and best-contested of recent years.

## FOREIGN NOTES.

*Roman Arena, Paris.*—In the course of carrying out certain excavations on a piece of land belonging to the Omnibus Company in Paris, an arena dating from Roman times was brought to light. The Company is prepared to sell to the Municipality the plot of 8,000 square mètres covered by the arena for the sum of 1,400,000 francs, but the Council hesitates to conclude the bargain unless the Government should decide to bear half the cost of the purchase. M. Duruy, formerly Minister of Education, has warmly espoused the project to purchase the plot for the nation, and has published an appeal to the public to secure one of the oldest monuments of civilisation in France from destruction, and preserve it for posterity.

*Copenhagen.*—The Exhibition of Northern Art, opened at Copenhagen on the 2nd inst., is one of the most extensive and interesting ever held in the Danish capital. Unlike the exhibition of 1872, which attempted to present an historical review of the development of painting and sculpture in the different portions of Scandinavia, the present collection limits itself to the more important works produced within the past ten years. It contains altogether 750 works of art, of which 439 are by Danish, 153 by Swedish, 90 by Norwegian, and 68 by Finnish artists.

*Munich.*—In illustration of the estimation in which the works of native artists are held in Germany, the Munich papers state that Defregger's "Waldschmiede," in the International Exhibition, has been purchased by the Saxon Government for the Dresden Gallery for the sum of 50,000 marks or 2,500*l.* sterling.

*King Humbert.*—In a recent conversation between King Humbert and Mr. F. Story, the American sculptor, who resides at Naples, the latter complained how difficult it was in Italy to find a really well-shaped horse as a model. He added casually that one of the finest specimens of the equine race he had seen of late years was a full-blood race-horse, named Damascus, the property of Mr. Wm. Harret, of Baltimore, an animal worth probably 5,000*l.* The king thereupon requested Mr. Story to communicate with his American friend, and to inquire whether he would sell Damascus, King Humbert being willing to give as much as 6,000*l.* for it, if necessary. In reply, Mr. Harret telegraphed asking to be permitted to make the king a present of the animal, a request to which his Majesty graciously assented. Damascus is accordingly being conveyed from Baltimore on board the *Birmania* to Italy, where it will be added to the royal stud, and serve the American sculptor as a model for an important equestrian statue, which he has been engaged to execute.

*The Salon of* 1883.—The pecuniary results of the present year's *Salon* have now been published, and though showing a slight decline as compared with last year, are deemed generally satisfactory. The exhibition was visited altogether by 514,083 persons, of whom 285,000 had free admittance. The receipts for admission amounted altogether to 297,909 fr., paid by 229,183 persons. There were 11,230 five-franc cards, producing 56,150 fr.; 23,906 two-franc admissions, producing 47,812 fr., and 193,947 admissions at 1 fr. each. In addition to the 297,909 fr. thus produced, 31,000 fr. were received from the sale of the catalogue; 14,000 fr. profit from the refreshment department; and 8,000 fr. from miscellaneous sources. The gross receipts were thus 350,909 fr. as against 386,266 fr. in the previous year. The expenses were about 185,000 fr., so that the net amount cleared in 1883 was 165,000 fr. or 6,600*l.*

*Dumas.*—The unveiling of the statue of the great French novelist, Alexandre Dumas (*père*), took place on the 24th of July, being the anniversary of his birthday. The monument (which is by the late Gustave Doré) is erected on the Place Malesberbes, Paris. We published a view of it in our number for April 7 last.

*University Museum, Berlin.*—The new and splendid building which has for some time been projected as a museum in connexion with the University of Berlin has at length been commenced. It is intended to contain the three extensive collections belonging to the institution in question, namely, those of zoology and mineralogy, and the celebrated collection of skulls made by Professor Virchow. The site of the University Museum is the extensive plot between the two new Academies of Mines and of Agriculture in the Invaliden Strasse. Architecturally, these two edifices will form respectively right and left wings to the new structure, which will be erected in a style in harmony with that of the two Academies. The time which it is estimated will be required to complete the new Museum is six years.

## FOREIGN COMPETITIONS.

THE international competition for the Northern Museum, Stockholm, to which reference was made in the *Builder* of April 14, has now been decided. There were fifteen competitors, who submitted, together, 109 sets of drawings. Plans were sent in by architects from Stockholm (6), Berlin (2), Göteborg, London, Mannheim, Prague, Vienna, and Düsseldorf (one from each city); there was one anonymous design. The estimates ranged from 31,000*l.* (from Stockholm), to 312,000*l.* (Berlin). The jury have made the following awards:—First premium (84*l.*), to W. Manchot, Mannheim; second (34*l.*), H. Mahrenholz, Berlin; third (17*l.*, and an extra premium of 11*l.*), Karlson, Stockholm; fourth (17*l.*, and an extra one of 6*l.*), Wallentin, Stockholm; fifth (17*l.*), Benischek, Prague. The jury have distributed the following additional prizes:—56*l.* to Bruno Schmitz, Aachen, whose design was sent in too late (after June 1); and 17*l.* to J. H. Peterson, Stockholm.

The competition for a model theatre at the Berlin Hygienic Exhibition has, according to the report of the jury, resulted in comparative failure, not one of the designs submitted having satisfied them. But they have nevertheless distributed the 400*l.* placed at their disposal, as follows:—200*l.* has been awarded to Herren Schmidt and Neckelmann, Hamburg, for their joint design, which they consider the best; and 67*l.* each to Herr W. Kind, of Berlin, Herren A. Höpfner and A. Roesicke (jointly), and Herr L. Arntz. The premiated designs are to be exhibited.

Designs have been invited for building on the Museum Island of Berlin, as mentioned in detail elsewhere. The collections of the Berlin museums are assuming such magnitude that additional buildings are required. The competition being confined to German architects, it loses in interest to the English profession; but it may be stated that four premiums of 250*l.* each are offered.

## VENICE.

PILES and puddle to cut off a small section, such as in other cities would be called a street, and pumping out the enclosed area, thoroughly draining each row of houses, enclosing the drains so that the future action of steamers should not disturb them, careful removal of the deposited sludge, and the substitution of puddle and concrete next exposed piles, and clean gravel for the remainder. Then pond No. 1 would be in a tolerably sanitary condition; and if clean sea-water could be introduced it would form the first instalment of a system of sanitary purification. I think pond No. 2 should adjoin it; and that when it is ready the barrier should be removed, and so on, section by section, steamers, if necessary, plying within the improved sections or enlarged pond.

The idea of steamers in Venice is about as horrible as an omnibus running to Jerusalem, or a tunnel penetrating the Channel; but the people who faint at such thoughts would go to Canterbury by train, or use knives and forks and many appliances unknown to the saints and ancients. We cannot be consistent in the matter of ideas, taken all round. But that is no reason why the thoroughfares of dear (stinking) Venice should be filled in, and the place robbed of its very characteristic waterways, when there are so many ways of lifting sewage by pushing or pulling pumps, and so many flat districts which the town's fœcal matter would benefit either with wet or dry application. I wish the Society for the Preservation of Ancient Monuments would have an eye to drains, and study sanitary problems generally. I mean no insult to a possibly useful body. Sanitation is taking a line, and if the members awaken some day to find it sweeping on like a torrent, they may find themselves opposed to it, from lack of the patience which a little preliminary study would have enabled them to command. They would regret the filling up of the water-ways of Venice (tidal cesspools they are also), so would we all.

Supposing this be done, some sectional process for removing the present deposit of sludge would be necessary, and a system of drainage and lifting of sewage too, or the place would be dangerously unhealthy with its roadways instead of waterways, and, minus drains, the last state would be worse than the present, recalling Irish towns, where all sorts of odd things are pitched into the gutter close to the front door, and stay there until they deodorise, making the street a prolonged cesspool.

It may not be pleasant to think that Venice is a tidal cesspool, but the harbour of Portsmouth may be so described, and the unpleasantness is a small matter if it be true, and if unseasonable storm clouds do not wash away epidemics.

Having no capital I do not float companies, but, in this instance, I think you may go out of your way by allowing me to suggest a joint-stock society for reclaiming marsh land and irrigating it with Venetian sewage. The city to be drained and purified at the same time that its watery conditions are not altered permanently. Ordinary rainfall "as per usual." In most other places this needs special treatment. It is time that those who would give anything to keep up the peculiar beauties of Venice combined to remove the crying cause for their abandonment in favour of drains.

"Who will bell the cat?" and how to set about it may follow if the right number of the right people can be induced to care whether or not it be done, and the *Builder* is the key to

them. The Venetians are the most concerned, but they like the "*statu quo*," and are all too happy and contented apparently. Some inhabitants do not know that their towns are unsavoury.

HAL. J. WEBBER.

## THE OLD CITY OF LONDON SCHOOL.

LAST week Messrs. Norton, Trist, & Watney offered for sale at the Auction Mart the freehold property in Honey-lane Market, off Cheapside, known as the City of London Old School, now disused owing to the erection of the new school on the Victoria Embankment. The site has an interesting history. It is intersected by the divisional boundary of the parishes of St. Mary Magdalene and Allhallows, and on the western part, before the fire, stood the Church of St. Mary Magdalen, Milk-street; and on the eastern part the Church of Allhallows, with Honey-lane to the south. City records state that the site was purchased by the Corporation in 1687 for 400*l*., and the amount applied for the making of chimes and a dial-plate for the steeple of Bow Church, to which Allhallows, Honey-lane, and St. Pancras, Soper-lane (now Queen-street), became united, under the Fire Act of 1672, whilst St. Mary Magdalen was affiliated to St. Lawrence Jewry. The sites of the two destroyed churches were appropriated to the purposes of a public market until the year 1835, when the City of London School was erected thereon. Mr. Trist, the auctioneer, in introducing the property, adverted to its great value as being immediately contiguous to Cheapside and to the neighbourhood of the Manchester trade. He observed that it contained an area of 11,300 superficial feet, with frontages of 75 ft. to Milk-street, 228 ft. to Honey-lane Market, and 151 ft. to Russia-row. The building itself was described as erected from the designs of the late Mr. J. B. Bunning, in the Elizabethan style of architecture. Referring to the value of property in the locality, the auctioneer said he was able, from his own experience, to state that Messrs. Dent & Co.'s premises adjoining were sold in 1881 at the rate of 10*l*. per foot, while another property near was sold for 14*l*. per foot, and in Milk-street he had sold property containing an area of 750 ft., for 6,000*l*., or at the rate of 8*l*. per foot. Taking the school site at 8*l*. per foot, it amounted to 90,400*l*., while, with the cost of the building, which might be used for the ordinary purposes of trade, the property was worth 110,000*l*. The first offer made was 40,000*l*., on which an advance of 5,000*l*. was at once made, and by further advances of 1,000*l*. at each bid 64,000*l*. was reached, when the biddings stopped, on which the auctioneer observed that it was much below the reserve, and the property was withdrawn. It transpired in the room that the reserve was about 100,000*l*.

## BUILDING OVER THE DEAD.

SIR,—I noticed in some of the daily papers last week a statement to the effect that it was proposed to build over the Peel Grove Burial Ground, Bethnal-green, near Victoria Park. The statement is confirmed by a paragraph which appears in last Saturday's *Metropolitan*, which runs:—

"The Peel Grove Burial Ground figured before the Bethnal-green Vestry the other day, and not by any means for the first time. A step long foreshadowed has now been taken, and the Vestry were called upon to deal with an application for permission to build a number of houses, and to form a new street across Peel Grove. According to the statement of Mr. Ewin, the representative of the district at the Metropolitan Board of Works, there are not less than 20,000 human bodies in this old burial-ground, and numbers of these are not entirely decomposed. Mr. Ewin recalled to mind that when the subject was first broached, it was objected that the foundations of any roads or buildings might subside as the coffins decayed and the graves fell in. Usually desirous of giving every reasonable facility for building operations, the Metropolitan Board have, very justly, felt the necessity for dealing with this application, for which there are few precedents, but which will soon be succeeded by others of a similar nature, with especial caution; and it may be anticipated that the projected house accommodation in Peel Grove for 400 families will not be sanctioned if the statements freely made in the locality are substantiated. Meantime, the Bethnal-green Vestry have expressed the opinion, by resolution, that 'it is extremely objectionable that any house should be erected on the disused burial-ground in Peel Grove, unless the bodies therein interred have been previously removed.'"

"We should think so, too!" will, no doubt, be your comment on this resolution. But in these days of talk about sanitary progress, when people are rediscovering and beginning to apply sanitary rules laid down thirty years ago, is it possible that there can be any doubt as to the power of the Metropolitan Board of Works and the Vestries to peremptorily veto the running-up of dwelling-houses on a modern and not-long-ago-closed burial-ground,—*before removing the remains of the dead?* I know not what "precedents" there may be for such doings; no doubt some could be found amongst the many bad precedents in building and sanitation to which you, Sir, long ago called attention. The irony of the sentence in which solicitude is expressed, *not* as to the consequences to the poor people who are to be housed on a substratum of partially-decomposed human remains, but as to the danger of the sinking of roads or buildings, though evidently unintentional, is full of grim significance for those who can read "between the lines." The one thought of all concerned seems to be with the safety of property in bricks and mortar. But those who are proposing to build over this cemetery may "take heart of grace" if they get the "reasonable facilities" which are so glibly talked of, for, as a suburban resident, I am able to affirm most distinctly from personal knowledge that it is quite within the power of the speculating builder to build his walls so thin and generally so to eliminate the element of solidity (and, therefore, of weight) from his erections as to render their sinking into the ground a very remote contingency. (They are, some of them, far more likely to be blown away.)

In all seriousness, it is positively staggering to be gravely told that "other projects of a similar nature" are likely to come up for decision by our not always immaculate local authorities. If the law be not strong enough or clear enough to prevent the carrying out of such proposals as that now made, it is high time that it should be reinforced or elucidated. If, by any "fluke" or act of jobbery such misdeeds are to be permitted, they will "*foreshadow*" pestilence of some kind, if not cholera.

Perhaps, Sir, you will allow this communication a place in your columns, if only to stimulate the Metropolitan Board to continue to regard such projects with "especial caution," although the phrase seems to indicate a desire to parley as to proposals which should be at once indignantly scouted.

Is this "Peel Grove Burial Ground" identical with what was once known as the "Victoria Park Cemetery"? If so, I distinctly recollect complaints being made a few years ago as to the overcrowding of the ground with coffins; and these complaints, if I mistake not, led to the closing of the burial place.

DELTA.

## DWELLINGS IN THE SUBURBS.

WILLIAM HOWITT, in his able and exhaustive work on "The Northern Heights of London," points out that the deterioration of the prosperity and integrity of a nation infects even the art of building. Of this law the Roman Empire furnishes a notable example; and truly, under these conditions, the prospects of our own beloved country are anything but cheerful. Yet so surely has the feeling of sturdy independence and national superiority which animated the bosoms of our forefathers grown upon us, that we can hardly conceive of the often-predicted downfall of England as an actual contingency. If we could but persuade ourselves that the degeneracy of our building is not a fact, or that it is only a temporary phenomenon in the progress of civilisation, we might rest quietly for another century or two. But can we do so?

If the two great intellectual principles of our time,—those of scientific inquiry and æsthetic feeling,—have taught us anything, it is this, that our houses should be *healthy*, and that they should be *beautiful*. It needs but little reflection to remind us how wofully these two principles are at variance with the actual facts. Do we not hear of the houses of the aristocracy,—even of royalty itself,—being found totally unfit from a sanitary point of view for human habitation? Can we doubt that these revelations are but the signs of a vast mass of facts that might be revealed, seeing how architects and builders have proved themselves totally ignorant of the first principles of sanitary science? Then as to their beauty,—we know the awkward construction, the gloomy and lugubrious furniture and effects, of the houses of many of the rich. It is true that in many cases there has been a great improvement of late years, but we wish that all would understand that it is no more expensive to build and inhabit a beautiful house than an ugly one, and often less so. We give a hearty hand to the champions of scientific principles, and claim that those principles should be properly carried out; nay, though unprepared to go all lengths with our æsthetic friends, we confess to no little sympathy with them, and a cordial agreement with their main principles.

We have spoken of the houses of the rich; but what shall we say to the houses of the poor? Can it be said that in them the laws of health and taste are obeyed? We will not repeat the shameful story of our fellow-creatures stifling to death in the crowded courts of the metropolis; but we can point to places elsewhere in which the spirit which creates or allows such horrors is again triumphant. We will not enter into long descriptions of the manner in which houses are constructed at this day in many outlying suburbs, which we may all see for ourselves; but we can think upon the degradation of such a state of things existing at all, and curse the selfish and Mammonite spirit which has brought us to this pass.

The speculating builder is so truly a product of the nineteenth century that no one seems to know how to deal with him. Before him the local dignitaries quail; and he proceeds unmolested with his erections in a confident and business-like manner. His eye is entirely upon the main chance; and why not? He but obeys the impulse of his time. We, however, may be pardoned for giving a thought to the fate of the unhappy inmates of these ill-fated dwellings; and even if personally unable to remedy the evils of this deplorable system, may insist, in the name of honesty and humanity, that those whose special business it is shall do so.

To lay stress on the cultivation of art in the houses of the poor seems almost ridiculous in the face of present difficulties; although, we believe, it to have, nevertheless, an important influence on health and morality. But let us be sure that if the national standard of integrity is to be maintained among the poorer population, proper dwelling accommodation, at least, they must have; and let us resolve that they shall have it.

REGINALD ARTHUR BECKETT.

## THE LAW COURTS.

SIR,—In consequence of further complaints from the Bench this week, I beg leave to mention a few slight changes which I lately suggested in the interior construction:—

1. The public entrance into each of the court-rooms should be by *one door in the middle*, at the back.

2. In front of it, on the inside, a partition or screen from end to end, whereby

*a*. The attention of the court would not be distracted by the continual opening of the door.

*b*. The sound would be deadened.

*c*. The draughts would be intercepted.

*d*. Persons rushing in could recover themselves before advancing into the body of the court.

*e*. One man could guard it.

3. A separate entrance at the side for the Bar. The entrance for jurymen is found unnecessary, and the gallery meant for them is forbidden to be used on account of its inconvenience.

The present construction of the doors diminishes the accommodation by cutting out a large corner on each side; (2), being in the centre, they leave no sufficient gangway, so that the decorum of the court is continually disturbed by people hurrying in; (3), if both sides are used (in all, four doors), four officers are required,—if only one side, the other is useless; (4), they are perpetually being opened, drawing off the attention, and making a noise.

LOUIS DE SOUZA.

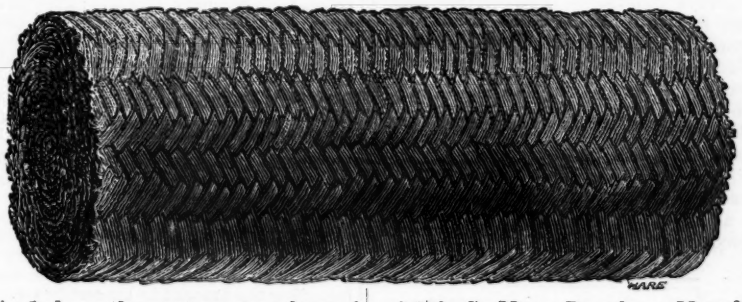
## CHURCHES IN SCOTLAND.

WILL any one kindly name two or three Episcopal churches in Scotland that are considered the best examples, as to purity of Ecclesiastical style of architecture, erected either in ancient or modern times?

INQUIRER.

## ASBESTOS.

WE mentioned briefly not long ago the increased use of asbestos, as prepared by Mr. John Bell, at his works in Southwark-street, London, and we are led by some inquiries we have received to add a few particulars. The peculiarity incidental to asbestos fibre for a long time baffled all attempts to spin it into a yarn without the intermixture of a certain proportion of flax or other vegetable fibre, which, of course, could only be looked upon as an objectionable adulteration, and was only to be tolerated until other and better means could be discovered. Within the last few years, however, the difficulty has been overcome, and yarns capable of withstanding great tensile stresses can now be readily produced by machinery which has been specially constructed for the purpose. One of the most important applications of this yarn is for the manufacture of steam packings, of which a great variety are made, each description being designed to meet some special demand. In making packing, it was at first not sufficiently recognised that the fibres of asbestos were apt to be largely charged with minute particles of pyrites, and until this fact was appreciated it was often found that the piston-rods were scored, the damage being attributed to the action of the asbestos itself, instead of to the impurities it contained. To obviate this defect, it therefore became necessary, not only to carefully select the most suitable kind of asbestos for the purpose, but to thoroughly cleanse it from all stone and grit before spinning, for which duty machinery had to be adapted. The yarn now produced is quite pure, and is capable of being woven into almost any kind of



fabric. Fig. 1 shows the most common form of packing, in which the pure asbestos yarn is simply plaited up by machinery into a square or round rope. It was first brought out by Mr. Bell, in the year 1879, and was immediately adopted by the British and German navies, where its use is still continued. But it was soon ascertained that special cases required special treatment, and though the plaited packing was generally satisfactory, it became evident that something else was wanted in the case of steam-engines with extremely high piston speeds, such as are now being introduced into the merchant service. To meet this demand the yarn was first woven into a cloth, which, being slightly waterproofed with vulcanised indiarubber, was rolled up into a rope in much the same way as the canvas is treated in what is known as Tuck's packing, only without the rubber-core. The enduring powers of this asbestos block-packing are quite remarkable. In one case, on being taken out after twelve months' working with steam of 70 lb. pressure, it was found to be perfectly good, and was accordingly replaced, while, as an instance of its efficiency, we can cite a case in which, after uselessly trying almost every kind of packing in a troublesome stuffing-box of a large pumping-engine, the asbestos block-packing was found to answer admirably, and the result has been that an average of 1½ lb. to 2 lb. better vacuum has since been maintained in the cylinder.

It has often been erroneously stated that asbestos packing could be used without lubrication. No greater mistake could exist. It not only requires a good supply of oil, but demands careful attention on the part of the engineer in charge.

A great deal of yarn is woven into cloth, the increased use of which has been very marked during the last twelve months, and which is being adopted for a great variety of purposes. One noteworthy application is for fireproof curtains, and several of these have been supplied by Mr. Bell for theatres in Great Britain, the United States, and some of the principal cities in Europe.

Another interesting application is in the filter invented by Mr. Maignen. This apparatus consists of a hollow perforated cone of earthenware, over which is stretched a specially woven asbestos cloth. On the outside a layer of the finely-powdered filtering medium,—Maignen's patent carbocalcis,—is automatically deposited by being mixed with the first water put into the filter.

For forming the joints of pipes exposed to the action of moisture, and for man and mud-hole doors requiring frequent removal, asbestos woven cloth is very largely in demand. In these cases asbestos millboard, which is the cheapest form of jointing material, is comparatively worthless, if, indeed, it is not absolutely objectionable, from its permeability to water, which soaks through and attacks the iron of the bolts, and it was therefore necessary to devise a combination which would effectually resist the heat and damp.

The remaining uses of asbestos which we have to notice appear to be mainly in the production of fireproof cement and putty, for which there is considerable demand for certain kinds of joints, and in the manufacture of fire and acid-proof lumps, blocks, and bricks. The ordinary gas fire is familiar to every one, and it will suffice to point out that asbestos enters largely into the composition of the artificial fuel upon which the success of the fire in a great measure depends.

## BUILDING PATENT RECORD.*

### APPLICATIONS FOR LETTERS PATENT.

3,366. W. R. Lake, London. Door locks. (Com. by E. A. Chameroy, Paris.) July 6, 1883.

3,379. G. Maw, Broseley. Manufacture of earthenware tiles. July 7, 1883.

3,396. D. Timings and S. Timings, Birmingham. Construction of door springs. July 9, 1883.

3,399. F. Newman, Ryde. Fastenings for doors. July 10, 1883.

3,438. J. Thomlinson, Carlisle. Manufacture of plaster of Paris. July 12, 1883.

3,446. G. Howard, London. Manufacture of marquetry parquet for flooring, &c. (Comp. Spec.) July 13, 1883.

3,467. H. J. Haddan, London. Grates. (Com. by E. Breslauer, Berlin.) July 13, 1883.

3,469. H. J. Haddan, London. Cord fasteners for window-blinds. (Com. by D. W. Ernsting, Bremen.) July 13, 1883.

3,488. J. Fairbairn, Edinburgh. Water-closets, urinals, lavatories, baths, and service cisterns. July 16, 1883.

3,512. E. Gilbert and A. E. Gilbert, Dundee. Water-closets. July 17, 1883.

3,540. W. Ayres, London. Manufacture of sash-weights, &c. July 18, 1883.

3,555. C. J. Marson, London. Manufacture of slabs and coverings for building purposes, &c. July 19, 1883.

### NOTICE TO PROCEED

has been given by the following applicants on the dates named:—

*July* 10, 1883.

1,391. E. R. Wethered, Woolwich. Latches, locks, and lock furniture. March 15, 1883.

1,690. F. P. Preston, J. T. Prestige, and E. J. Preston, Deptford, and E. W. de Rusett, Anerley. Lavatories. April 4, 1883.

*July* 13, 1883.

2,921. C. Major, Bridgwater. Roofing tiles. June 12, 1883.

*July* 17, 1883.

1,302. R. Whiston, Wolverhampton. Fastenings for doors, windows, and shutters. Mar. 12, 1883.

1,317. J. Harsant, London. Apparatus connected with the handle of a closet for preventing waste of water. Mar. 13, 1883.

1,372. J. E. Rendle and F. B. Rendle, London. Glazed structures for horticultural purposes, &c. Mar. 14, 1883.

3,446. G. Howard, London. Manufacture of marquetry parquet for flooring, &c. July 13, 1883.

### ABRIDGMENTS OF SPECIFICATIONS,

*Published during the week ending July* 14, 1883.

5,393. W. N. Hutchinson, Wellesbourne. Joints of drainage-pipes. Nov. 13, 1882. Price 8d.

The sockets and spigots of the pipes are coned, and round the spigots inside of the sockets are gaskets of india-rubber, &c., of a conical or triangular section to keep the joints tight.

5,490. C. Wheeler, Newbury. Packing or "caulking" for pipe-joints, &c. Nov. 18, 1882. Price 2d.

This packing consists of soft wire wound spirally round the spigot end of the pipe, and between each coil is also wound hemp. A ring or collar is forced down when the ends of the pipes are in position to set this packing up. (*Pro. Pro.*)

5,496. S. Slater, Oldham. Stoves. Nov. 18, 1882. Price 2d.

These are portable stoves, and inside the outer case is a perforated shell to contain the fuel. This shell can be lifted out when the stove is to be removed from one room to another. (*Pro. Pro.*)

5,508. L. A. Groth, London. Producing architectural ornaments, &c., from wood and other fibrous pulp. (Com. by C. G. Mineur, Stockholm.) Nov. 20, 1882. Price 4d.

This is an improvement on Patent No. 158 of 1881, in mixing the wood pulp, &c., with water until it is quite fluid, and then pouring it into the mould, when the water is removed by a sponge through muslin. More pulp is then poured in, and the water again removed in the same manner, and so on until a sufficient thickness is left of the pulp in the bottom of the mould.

5,528. E. B. Brooke, Huddersfield. Apparatus for removing the superfluous body and glaze off enamelled bricks. Nov. 21, 1882. Price 2d.

This is a revolving face-plate covered with a sheet of sieving or wire-work. (*Pro. Pro.*)

5,542. F. Wirth, Frankfort. Combined urinal and wash-stand. (Com. by F. Muller, Stuttgart.) Nov. 21, 1882. Price 2d.

The basin is pivoted above the urinal, and is brought to a level by treading on a foot-board. Afterwards, when the foot is removed, the basin tilts up and empties its contents into the urinal. (*Pro. Pro.*)

5,581. E. Hughes, Liverpool. Wood-block and other pavements. Nov. 23, 1882. Price 6d.

The bottoms of the wood-blocks are so rebated that when the blocks are placed together a dovetail is formed by two adjacent blocks, which is filled with the cement on which the blocks are laid.

***Published during the Week ending July* 21, 1883.**

5,598. F. Greatrex, Uxbridge. Construction of stoves, &c. Nov. 24, 1882. Price 6d.

Two uptakes are fitted to the stove, one at the top, the other at the back, whereby two currents of air,—a vertical and a horizontal one,—are drawn through the fire.

5,636. T. Carder, Bideford. Preventing the flow of sewer gas into buildings. Nov. 27, 1882. Price 2d.

Two or three traps are united into one apparatus. (*Pro. Pro.*)

5,646. F. K. de Stasicki, London. Manufacture of fire-lighters. (Com. by F. A. Christ and J. Weiler, Vienna.) Nov. 28, 1882. Price 2d.

These are made of a few twigs of wood bound together, which are dipped into an inflammable mixture and then coated with sawdust. (*Pro. Pro.*)

5,650. H. J. Haddan, London. Chairs. (Com. by E. Schmidt, Leipzig.) Nov. 28, 1882. Price 2d.

The seat is mounted on a disc, on the periphery of which is a thread which engages screw threads on the legs, so that by turning the disc the seat is raised. (*Pro. Pro.*)

5,680. H. Doulton, London. Construction of the steps of flights of stairs. Nov. 29, 1882. Price 4d.

On the terra-cotta step blocks and treads are fitted tread-pieces of hard vitrified ware.

5,795. J. Whitehouse, Birmingham. Sash-fastenings. Dec. 5, 1882. Price 6d.

A sliding bolt is fitted in the lower sash, connected with the eccentric pin of the ordinary lever, fastening in such a manner that when the lever is crossed over to the other sash to secure the two together, the sliding bolt is shot into a recess in the meeting rail of the upper sash.

* Compiled by Hart & Co., Patent Agents, 186, Fleet-street.

**Sad Sequel to a Bank Failure.**—Mr. John Barratt, builder, Southport, hanged himself on the 20th inst. He had to file a petition a few days previously, having lost heavily by the stoppage of the Southport Bank two years since, and this, it is believed, led to the suicide.

## IMPORTANT BUILDING ACT CASE.

### ASPHALTE NOT COMBUSTIBLE.

A SUMMONS taken out at Marlborough-street, by Mr. Thos. H. Watson, district surveyor of St. George's, against Mr. Way, builder, for covering a concrete flat with asphalte at the house, No. 4, Half-moon-street, Piccadilly, was heard before Mr. De Rutzen. Mr. Poland, barrister, conducted the case on the part of the builder.

Mr. Watson, district surveyor, said he considered asphalte an inflammable material, because it melted and partly burned when a piece of it was held in a gas jet, and that as it dropped it would set light to anything combustible near it.

Mr. Cubitt Nichols, the architect engaged on the buildings, related his many years' experience in the use of Claridge's patent asphalte, and believed that such asphalte, as used for flats, was the best incombustible material, and safer than a lead covering.—In answer to Mr. Poland, the witness said he believed there was a small portion of bitumen in it which would burn, but that in combination with about 90 per cent. of carbonate of lime it was, as a mastic, perfectly incombustible; and later on many cases were cited fully supporting his evidence.

Professor Attfield, F.R.S., Professor of Chemistry to the Royal Pharmaceutical Society, stated that he had analysed and tested Claridge's asphalte. It contained a small portion of bitumen, which, if extracted, would burn. About 90 per cent. of all asphalte was mineral matter, which would put out flame far better than water. In the ordinary dictionary meaning of the word, asphalte was incombustible. In cross-examination the witness said that in any case natural asphalte would not convey fire.

Mr. Penrose, architect to the Dean and Chapter of St. Paul's Cathedral, for the defence said he had used asphalte to cover roofs, and found it very suitable and safe, as it was incombustible; he had used it in Mr. Watson's district.

Mr. Robert Walker, architect, said he had used asphalte in more than thirty cases for covering roofs of factories and warehouses. He had known several cases where buildings had caught fire, but in no case had asphalte flats spread the fire; on the contrary, they had always retarded it. The witness gave proofs of the different effects of fire on lead and asphalte roofs by referring to the Alhambra fire.

Mr. De Rutzen stopped the case, and stated that he was clearly of opinion that Claridge's asphalte was incombustible within the meaning of the Act. He therefore dismissed the summons.

Mr. Farrell, secretary of the Company, was present, but after the magistrate's prompt decision, his evidence was not taken.

## COMMISSIONS.

### HEARNE *v.* KEELING.

THE plaintiff in this case (Queen's Bench, before Mr. Justice Williams and a Common Jury), was a brewer's agent, in business in Guildford-street, and the defendant was an architect who was interested in some buildings connected with the Auction Mart, Tokenhouse-yard. The action was to recover fifty guineas for having got Messrs. Spiers & Pond to take the Auction Mart Restaurant.

Mr. Wildey Wright was for the plaintiff, and Mr. Willis, Q.C., and Mr. Tindal Atkinson, for the defendant.

The case for the plaintiff was that he was promised the fifty guineas by the defendant on the 12th of March; that on the following day he wrote to the defendant—"To prevent misunderstanding, please drop me a line stating that on the contract being signed by Furnival & Co. and Spiers & Pond you will pay me on behalf of Dove & Co. fifty guineas, as verbally promised by you in the presence of Mr. Hudson;" and that the defendant replied ten days afterwards,—"Owing to your letter of the 13th inst. having been inadvertently covered under papers on my desk, it only this day came under my notice. As to the contents, I think your request is premature, as the arrangement, which I admit, does not become binding until the business is a *fait accompli*, which is scarcely yet the case, but when it is you may rely on my share of the understanding being carried out."

Evidence was given on both sides, the question in dispute being whether the promise to pay the 50 guineas was a personal one on behalf of the defendant, or whether the understanding was that he was merely to use his influence to induce Messrs. Dove Brothers to pay the plaintiff that amount.

The Jury having in the course of the case intimated that their minds were made up, found a verdict for the plaintiff for 52*l.* 12*s.*

## WOODEN PROJECTIONS UNDER THE BUILDING ACT.

### T. W. WILLIS *v.* J. DAVIS.

THIS was a summons taken out by the District Surveyor for Putney and Roehampton, under the 26th section of the Metropolitan Building Act, for the removal of six wooden balconies which the defendant had erected to four houses in Dyers-lane, Putney, and for which the sanction of the Metropolitan Board of Works had been refused.

The case was argued last week before Mr. Sheil at the Wandsworth Police-court.

The District Surveyor having proved the facts, and the service of the usual statutory notice to amend, the Magistrate made an order for the removal of the balconies within twenty-one days, the defendant to pay the costs of the District Surveyor.

**Look to the Balconies.**—Mr. Bedford, the coroner for Westminster, held an inquiry on Saturday, at the Session-house, touching the death of James Frederick Cassell, nineteen years of age, of 61, Blake's-road, Peckham, who was killed by the fall of a balcony at 17, Aylesford-street, Pimlico. The balcony was about to be repaired, and the deceased had incautiously stepped upon it and fell with it into the area below. The jury, on returning a verdict of "Accidental death," asked the coroner to communicate with the district surveyor, calling his attention to other balconies in the same street.

## ST. BEDE'S (R. C.) COLLEGE, MANCHESTER.

ON the 18th inst., which was Speech-day at St. Bede's (R. C.) College, Alexandra Park, Manchester, Mr. Humphrey F. de Trafford laid the foundation-stone of the central block of college buildings. The south wing was completed about two years ago, the erection of the central block and the north wing being postponed. The central portion will consist of an entrance-porch, 47 ft. by 10 ft., behind which will be a large vestibule with porter's rooms, and offices on the first floor. Like the south wing, it will be four stories high, and will be in the Italian style of architecture. The architects are Messrs. Dunn & Hansom, of London, the principal contractor being Mr. Healey, of Salford, and the cost of the work will be about 6,000*l.*

## LAND TAX.

SIR,—Some few weeks back you published an interesting paper by Mr. Grimes upon the land tax [*Builder*, June 2, 1883, p. 758], which contained one of the most useful tables upon the subject, and one which I have never seen before.

I have since been trying to ascertain upon what assessment Mr. Grimes has calculated his pound rate, but have been unable to obtain a satisfactory answer, although I think it must be calculated upon the Income-tax assessment for 1877. Would Mr. Grimes oblige by stating upon what assessment his pound rate was calculated, and whether the rate may be taken as the present actual charge?

I have always understood that the rate varied in different districts of the same county, and that it was very difficult to obtain the actual pound rate for any parish, as the present Income-tax assessment is more than one hundred times greater than the original Land-tax assessment made in 1692.

As all annuities and charges payable out of lands are liable to a deduction for land tax, you will at once see how necessary it is to be able to arrive at a pound rate calculated upon the present Income-tax assessment.

F. K. S.

## FIREPROOF FLOORS.

SIR,—Referring to "C. W. H.'s" inquiry in your issue of the 14th inst. [p. 62], I have much pleasure in bringing before his notice an article, which is not only fireproof, but sound-proof, and is already pretty extensively employed by architects and builders in London and New York. The material in question is a fibrous production from blast furnace slag, and is known to the trade as silicate cotton.

Silicate cotton can be so manipulated as to completely protect ordinary wooden joists from the action of fire; and, if used in conjunction with Hyatt's Patent Corrugated Iron, specially prepared for ceilings, a perfectly fireproof and sound-proof ceiling, of a light and inexpensive description, may be obtained.

I understand that your correspondent can receive samples and full particulars from the Silicate Cotton Works, Kentish Town.

S. R.

## THE UNDERGROUND RAILWAYS.

SIR,—Your correspondent's idea in your last week's edition [p. 97] for the ventilation of the tunnels on the Metropolitan Railway is, I am afraid, not an original one, for between Portland-road and Gower-street stations the tunnel is divided (and has been so some time) by a partition of woodwork. Why the railway company have not adopted this means of ventilation in all the tunnels I cannot say, except that I know from experience that while waiting for trains on Portland-road Station platform each train that enters brings with it volumes of hot, offensive air that almost chokes one, and if it is for this reason that they have not adopted the means of division of the tunnels for ventilation all through the line, I think that they are quite right too; for to have all the stations on the line like Portland-road and Gower-street stations would be most injurious to those waiting on the platforms for trains.

By means of a shaft of some kind running into the open air just before the station, which would carry the foul air from each train out of the tunnel, the divided tunnel might be useful, but as it is at present the air is taken from the tunnel and deposited in the station, which, if it is a station like Portland-road, is most injurious.

I think it is high time that some one stepped forth with an idea for saving the lives which we know we must lose, and are losing day by day, by these wretched tunnels; and I think that if the Metropolitan Railway Company were to offer some kind of reward or prize, it might be the means of doing something good; but it seems that nothing will be done until public feeling is risen to such a pitch that it will almost demand, instead of requesting, safe passage by rail, as it has a perfect right to do.

HASKINS W. ROWBOTHAM.

## MADDISON *v.* HELSTON RAILWAY COMPANY.

SIR,—Your observations on this case [p. 74, *ante*] will interest all who are concerned in contracts. It is not easy to see how the decision was arrived at. One would suppose that the sub-contractor was held by the conditions in the main contract as to the plant. This, however, must depend upon legal interpretation of the documents. However, now we know, we can provide for this contingency by not only specifying that the contractor shall not sublet without written consent, but further that the sub-contractor so approved shall be bound by the conditions applying to the main contract. This must be so, otherwise the greater part of a contract might be sublet, and the contract evaded in its material points. I have looked upon a sub-contractor as being in the place of and bound by the conditions of the contract, as though he were the only party to it.

May I add, whilst on this subject, that I think in every case a suitable advance should be made for contractors' plant, if it can be impounded, and also that interest should be allowed on retention money?

J. B.

## SUB-CONTRACTS.

SIR,—Allow me to say a word on the contractor's side of the question [see *Builder*, pp. 31, 62, 97, *ante*.]

Specialists generally get some 50 per cent. higher prices than ordinary builders; they are, as a rule, exempt from the supervision of the clerk of work and are allowed to do their work their own way. They enter the building, use the builder's scaffolding, ropes, &c.; beg, borrow, or steal all sorts of small matters, such as a hod or two of mortar, a few bricks, a little paint or solder; cut the work about, dirty the floors, and leave all their rubbish for the builder to clear away. Often, watching, lighting, and fuel are found for them, and their arrogance is proverbial.

Surely it is not too much to allow a builder 10 per cent. for all this, and the architect must be very unjust not to do so, as he can ensure payment by insisting on the builder settling the account before including the amount in his certificate. Where it is not done, the builder thinks the architect takes the 10 per cent. for himself.

ROBERT PHILLIPS, Clerk of Works.

## PROPOSED LIVERPOOL CATHEDRAL.

SIR,—I noticed in the *Builder* for the 30th ult. [p. 897], the report of the special sub-committee entrusted with the duty of collecting facts bearing on the subject of a site for the proposed Liverpool Cathedral, from which I am very much surprised to find that the committee appear to specially favour the St. George's Dock site. Now, I think every one is agreed as to the desirability of the cathedral being in a central position; and I, as an old Liverpudlian, and one who is willing to subscribe my mite to such an object, must protest against the proposal of the committee to plant the cathedral at the extreme edge of the town, as would be the case if it were built down at the docks. The committee say that the St. George's Dock site is easy of access from the Cheshire side; but for the people of Liverpool to erect a cathedral for the Cheshire folk is a new doctrine, and if the Cestrians were asked to transfer Chester Cathedral to Birkenhead for the convenience of Liverpool, the absurd proposal would be laughed to scorn.

The site of St. Luke's Church is a very fine one, and surely the Churchmen of Liverpool will never let their new cathedral be sacrificed for the sake of 20,000*l.* It would be central here; and although Bold-street at the present is too narrow to be the Ludgate-hill of Liverpool, yet it is quite possible that that thoroughfare may be widened in the not very distant future, when the west front of the cathedral would be seen to advantage.

But, sir, I have always maintained that Monument-place would be the grandest site in Liverpool for a cathedral; it is central, open, and high; it is completely surrounded by streets; the property encumbering the site is not very expensive, and main thoroughfares from all parts of the city converge on the spot. The west front would present an imposing appearance on ascending London-road, and this thoroughfare would be truly the Ludgate-hill of Liverpool. As regards St. Silas' Church, which stands on a portion of the ground, that might be absorbed into the cathedral scheme, and the present incumbent made a canon.

I leave the consideration of this matter to the good sense of the Churchmen of Liverpool, trusting that they will never fall into the mistake of subscribing towards building the cathedral down by the docks.

T. B. DENNETT.

## BUILDERS' BENEVOLENT INSTITUTION.

THE thirty-sixth annual meeting of this institution was held at Willis's Rooms on Thursday, the 26th inst., Mr. George Plucknett, J.P., treasurer, in the chair, in the unavoidable absence of the president, Mr. J. T. Chappell.

The committee, in their annual report, read by the secretary, Major Brutton, observe that the Institution continues to fulfil the purposes for which it was founded, and is in a satisfactory condition. The prosperity of the past year was greatly influenced by the liberality and energy of the president, as by his exertions the donations at the last anniversary dinner exceeded in amount those of any former occasion. Nevertheless, the committee express regret that many master tradesmen engaged in the various branches of the building trade in and around London have not yet contributed to the funds of the charity, though it is one which, they urge, has pressing claims upon them. The committee regret the loss by death during the past year of several prominent supporters of the Institution, among whom was the late Mr. William Higgs, of South Lambeth, president of the Institution in 1877. During the past year eight pensioners had been elected, six men and two women, and one widow of a pensioner had been placed on the pension list. Ten pensioners had died during the year.

The balance-sheet shows a total income for the year (including 938*l.* brought forward) of 5,214*l.*, of which 810*l.* was received from annual subscribers, 1,471*l.* in donations, and 692*l.* from dividends in Stock. The expenditure amounted to 2,224*l.* 4s. 3d., including 1,808*l.* 6s. 4d. paid to pensioners, and there remained in hand a balance of 2,990*l.* 12s. 7d.

The report and balance-sheet were unanimously adopted, on the motion of Mr. Thomas F. Rider, seconded by Mr. Thomas Rogers.

A vote of thanks to Mr. J. T. Chappell, the President of the Institution for the past year, was moved by Mr. H. G. Smith, seconded by Mr. T. Rogers, and heartily accorded, the chairman speaking of the great obligations which the Institution was under to the indefatigable services of Mr. Chappell.

On the motion of Mr. Rogers, seconded by Mr. Smith, thanks were given to the Vice-presidents, and Mr. W. J. Mitchell proposed a vote of thanks to the Trustees (Mr. Plucknett, Sir S. M. Peto, Ald. Sir J. C. Lawrence, M.P., and Mr. C. T. Lucas), which was carried, as were also votes of thanks to the Treasurer (Mr. Plucknett) who was re-elected; to the auditors; and others.

The retiring members of the committee were, with one exception, re-elected, and on the motion of Mr. F. W. Keeble, seconded by Mr. Thomas Stirling, Mr. Thomas Hall (of the firm of Hall, Beddall, & Co.) was elected a member of the committee.

Mr. Henry G. Smith, of the firm of G. Smith & Co., Pimlico, was, on the motion of Mr. Rider, seconded by Mr. Rogers, unanimously elected President for the coming year, and in returning thanks for his election, he said he intended to do his utmost for the Institution, and would endeavour to obtain a large increase in the number of annual subscribers.

It was announced that the annual dinner will be held on the 8th of November next at the Freemasons' Tavern.

## TENDERS FOR BOARD SCHOOLS.

SIR,—Now that another Board School is to be tendered for, let us hope it will be given to the lowest competitor, and not to a builder third or fourth on the list of tenders above the lowest; that has been the case before, not in one instance, but in nearly every school that has been built by the Tottenham School Board, and consequently at the expense of the ratepayers. If the contract is given to a builder say 500*l.* (and sometimes more) above the lowest, because that builder could not find sureties, had the Board not better, even at the additional cost of 150 guineas, secure the temporary services of a surveyor to survey the building from time to time during construction, or employ two clerks of the works instead of one? But what security is required from a builder where 20 per cent. of the outlay is retained in hand by the School Board? That becomes the security in itself, and as a rule,—of course there is no rule without an exception,—the first instalment certified by the architect is not paid until the second instalment becomes due, and so on until the end, when part of the "retention money," *i.e.* the 20 per cent. retained in hand by the School Board, to the amount of 500*l.*, is held back for six months after the final certificate has been granted; and when that final certificate becomes due, say upon a contract of 8,000*l.*, the "retention money" amounts to no less an amount than 1,600*l.*, 500*l.* of which is not due to the builder until six months after completion, when the "certificate of completion" is granted after the building has been surveyed by the architect and all faults and deficiencies pointed out by him to the builder made good. It is not every builder, although he may be perfectly sound, that can obtain sureties (even if he likes to make the request) from a friend or friends for a building contract of 8,000*l.*, that friend not knowing what responsibility is attached to a building contract of 8,000*l.* Although it seems a great responsibility, it really is nominal, where 20 per cent. is kept back for every 100*l.* advanced to the builder; consequently, the responsibility grows less and less to the surety as the building approaches completion. It is seldom a builder fails at the commencement of any contract, and if an architect and the clerk of the works cannot ascertain that the work is being carried on according to their specification as the building is being carried up and roofed in, what more servants do the School Board require?

WILLIAM H. PIPE.

## CEMENT.

SIR,—Could you or some of your readers kindly answer me the following query?

I have done the concreting to a reservoir, the walls of which are built of rough wall-stones and lime. On the outside is a stream of water running, some of which percolates through the wall, and causes the lime to keep soft. I have plastered the sides with cement and sand, gauged 3 of sand to 2 of cement.

On the side where the stream runs it has shelled off, and in many cases never set at all. The architect condemns my cement, which is of best quality.

What I want to know is, who is at fault and what is the best way to avoid this occurring again? Also, what action the wet lime would have on the cement?

AIREDALE.

## PROVINCIAL NEWS.

*Halifax*.—New premises in New South-street, for Messrs. G. Webster & Son, grocers, are approaching completion. The drawings have been prepared and the work is being carried out by Messrs. George Buckley & Son, architects, Halifax. The building is described as being in the Greek style of architecture. The block will comprise three large shops, with extensive and well-lighted offices over, for which a separate entrance is provided in New South-street. The furnishing is in the same style. With its rich internal fittings the shop, when completed, will, we are told, be one of the finest and best appointed in the provinces. The contractors are Messrs. Drake & Riley, masons; Mr. James Smith, joiner; Messrs. J. Bancroft & Sons, slaters and plasterers; Mr. John Naylor, plumber; Mr. John Berry, iron-founder; and Messrs. Millar, Dennis & Co., of Bradford, brasswork and internal fittings.

*Sherburn* (*Durham*).—On the 12th inst. the new Sherburn Hospital Dispensary was opened by the Bishop of Durham. The new buildings stand on the opposite side of the road to the hospital, and are, therefore, quite detached, though designed to harmonise with and form part of the general group. The buildings comprise a waiting-room, a dispensing-room, a consulting-room, and an examination-room and store-room. The whole has been erected at a cost of about 1,600*l.*, the contractor being Mr. W. Forster, of Croxdale, his sub-contractors being Mr. Laidler for plumbing and ironwork, Mr. W. Hodgson for painting, and the Gateshead Stained Glass Company for the glazing.

*Eastbourne*.—In Grossington-road, at the corner of Meads-road, a new college for the Misses Deacon, to accommodate (in the first instance) 100 lady students, has been completed under the direction of Mr. Crisford, architect, the builders being Messrs. Rowland & Sons, of Horsham. The largest room is 42 ft. 6 in. long, 25 ft. 9 in. wide, and 25 ft. high from floor to ceiling. It is divided into three portions by revolving partitions.

## CHURCH-BUILDING NEWS.

*Standlake*.—The parish church of the Holy Cross at Standlake is having another section of its restoration brought to a close. The nave and north aisle were re-opened by the Venerable Archdeacon of Oxford on Easter Sunday in 1881. It is contemplated that the restored south aisle, the baptistery, and the new south porch now in progress, will be first used upon St. Mary Magdalene's Day (July 22nd). The architect for the general restoration is Mr. Clapton C. Rolfe, of St. Michael's Chambers, Ship-street, Oxford. The restoration of the nave, &c., is of a substantial character. The new oak roofs are adorned by life-sized angels, carved in the same material. These angels bear shields upon which are emblazoned the various emblems of the Passion. The seats are of oak, massive in construction; upon every bench-end is a sculptured representation of a saint. They are placed according to ancient usage, the virgin saints on the north side, and the male ones on the south. The sculptor of all this work, under the immediate direction of Mr. Rolfe, the architect, was Mr. Harry Hems, of Exeter. The chancel has not been touched yet; it contains many mural tablets and monuments to the Stricklands, Westerns, &c. Messrs. Barnes & Sons, the builders, of Witney, who carried out the first section, are doing the portion of the work now in hand. The fine Early English arcade upon the south side has been carefully overhauled; a new lean-to roof in oak has been placed upon the aisle. It is of oak, having carved bosses in the solid beams. The struts supporting it rest upon angel corbels. They take the same line as an existing ancient example, and have carved spandrels. The new south porch is of early type; it exhibits richly-carved work in stone and oak, and the exterior door will be covered with much wrought-iron work. The south transept has been turned into a baptistery. In the midst stands the new font, with its oaken cover, over 6 ft. high, and worked up and down by a wrought-iron apparatus suspended from the central beam of the roof. This piece of work is by Mr. Harry Hems, of Exeter, who has also done all the rest of the new sculpture. In the baptistery will be a two-light stained-glass window, representing the baptism of our Blessed Lord by St. John the Baptist. The artist for this work is Mr. G. J. Baguley, of Carlisle-street, Newcastle-on-Tyne.

## Books.

*Economy of Coal in House Fires*. By T. PRIDGIN TEALE, M.A. London: Churchill. Leeds: Goodall.

THE author claims for this little treatise,—the expansion of a lecture,—that in it he for the first time sets forth the necessity for combining two principles, which other authors have severally recommended, in order to get the maximum result out of a given quantity of fuel, and to reduce the waste and inconveniences resulting from its combustion to a minimum. The conditions on which he insists, are that the bottom of the grate shall be such as to prevent the percolation of currents of air through the mass of fuel, and that the air-space under the fire-grate shall be kept warm. These he effects at once by a sort of sheet-iron box which fits under the grate and closes the space between the hearth and the bottom bar,—surely not a new arrangement? He calls his contrivance an "Economiser," and gives directions for its application to all sorts and conditions of fire-grate, and for its construction at a cost of a few shillings.

The main positions which this writer on an old subject takes up are incontrovertible. They are not new; but truths, however old, require frequent repetition before they get accepted, or, at least, acted upon. During many years the *Builder* fire, lighted at the top, has burned in thousands of grates without any attention, and with no smoke. Of the complete success of this plan of economising fuel and reducing dirt and dust there is no question. But years have not brought the plan into general use, and it would seem that the extra half-hour fires of this sort require to "burn up" after being lighted outweighs, in the public mind, all the grievances attending the present wasteful and unscientific system of coal consumption. The book under notice gives seven rules for the construction of fireplaces, and all of them are sound. It is written in a pleasant style, and is introduced by a short but suggestive preface, and (*nota bene*) the author has the rare modesty to admit that occasional failure does attend the arrangement. When such has been the case, he has generally succeeded in ascertaining the presence of something which invalidated his principle, and when he has not made a discovery of the kind he consoles himself with "Exceptio probat regulam," and gives us a new reading in "the exception *probes* (*i.e.*, puts to the proof,) the rule," for which alone he would deserve our thanks. The recommendations contained in this book are fully explained by cuts and diagrams, and we hope the principles thus further advocated will find at least a fair trial by all those who have to do with the construction of the domestic fireplace.

*The Hygiene of Armies in the Field.* By R. RAWLINSON, Esq., C.B. London: Wyman & Sons.

WE mentioned this paper briefly when it was first read by Mr. Rawlinson at the Parkes Museum. It ought to have extensive circulation, and we are glad to see that the author has now published it in a pamphlet shape. It is a valuable production, and comes at a most opportune moment.

## VARIORUM.

"THE SHEET METAL WORKER" (Crosby Lockwood & Co., London). This book appears to us to quite fulfil the intention of the author, and to provide intelligible instructions, amply illustrated by diagrams, for practical workers in sheet metals. The chapter on joints is specially complete and useful. The author is evidently familiar with his subject in all its phases.——"The Mechanic's Assistant," by John McCoom (Merser & Sons, London). This book will assist the mechanic to find the area of rectangular figures when the length and breadth are given, without the trouble of working a sum in duodecimals,—an assistance not many mechanics require nowadays. However, the work may have its uses,—when saving time is of importance. A notable feature is that it is the compilation of a professor of music!—— "The Charles Dickens Birthday Book," Compiled by his Eldest Daughter, with five illustrations by his Youngest Daughter (Chapman & Hall, Limited). Certainly, in this age of birthday-books, Charles Dickens should not be forgotten, for no author,—Shakspeare perhaps excepted,—furnishes so many apt mottoes for every occasion. The labour has evidently been one of love, and has been reverently and carefully performed; but why does the authoress depart from custom and give no clue to the novels and other writings from which the extracts have been culled? Some, of course, are at once assignable to their respective characters; but there are many which are riddles to one at least who knows his Dickens pretty well. The illustrations are full of nice feeling and graceful drawing, but they have a great fault, there is not enough of them.——"Stationary Engine-Driving," by Michael Reynolds (Crosby, Lockwood, & Co., London). A very clear and comprehensive treatise on a very interesting subject. It is well written, inasmuch as it is made perfectly explicit without the use of one redundant word. The illustrations are numerous and excellent. Where we can apply tests to the contents of this book we find it trustworthy, and where we have to take it on trust we feel quite at ease in doing so. The book should be possessed by every intelligent and ambitious engine-man. A very good portrait of James Watt is an additional recommendation. —— "Gleanings from Popular Authors" (Cassell & Co., Limited: London, Paris, and New York). This compilation has reached its twenty-second part, and fully maintains its character. The extracts from well-known works and prints from the blocks which illustrate them are alike well-chosen, good and varied, and specially adapted for the now fashionable recreation of public and semi-public reading and recitation. One advantage of such compilations as this is,—like Hunting, according to Mr. Leech's well-known drawing,—it introduces us to authors we should not otherwise meet.——"Picturesque America" (Cassell & Co.) has now reached part 28; but we cannot say that it is, in our opinion, equal to the "Picturesque Europe" by the same firm.

## Miscellanea.

**Lancashire and Cheshire Archæologists at Chester.**—Some fifty or sixty members of this society, including representatives both of Manchester and Liverpool, visited Chester on the 21st inst. They were met by the Dean of Chester, who personally conducted them over the cathedral, and delivered an address to them, which was, in fact, a very interesting historical sketch of the fabric. He went through the twelfth-century crypt, recently discovered, with them, and received a vote of thanks, moved by Sir Thomas Baker, and supported by the president of the society, Professor Boyd Dawkins, and the Rev. J. H. Stanning. The society afterwards viewed the Roman remains of Chester, and dined at the Town-hall.

**Kensington Vestry-hall.**—At a recent meeting of the Vestry, a report of the Special Purposes Committee was read, stating, with reference to the painting and finishing the hall, ante-room, large room, staircase, corridors, committee-room, and council-chamber, that eight sets of designs for the whole of the work, and one design for the decoration of the panels in the frieze of the large room, were submitted with estimates. Mr. Fisher moved the adoption of the first, for 1,375*l.*—Mr. Murlis seconded it, as he thought the design was the most useful.—Mr. Campbell objected to it, as there was no wear and tear in it. He hoped No. 3 "Competition," 1,348*l.* 13s., would be selected, as there were no light and delicate tints in it. The Vestry, after a short discussion, resolved to accept No. 1, which belonged to Messrs. Liley & Wood, Radnor-terrace. A discussion ensued as to the employment of a suitable person to supervise the work, at a cost of 3 per cent. on the outlay, but the proposition was rejected, as it was considered that there were competent members on the Vestry who would be able to supervise the work.—Mr. James Flood moved "That it be referred to the Special Purposes Committee to consider and report upon the best known method for improving the very defective state of the Council Chamber and large Committee Room, so far as the acoustics for sound is concerned."—Mr. Flood invited the Chairman to go to the lower part of the chamber, and he would judge for himself that it was impossible for members to hear.—Sir A. Gordon seconded the proposition, and said one way to improve the sound would be for gentlemen to talk less. The motion was referred to the Committee.

**Swedish Galvanised Iron.**—We have received some particulars of Swedish galvanised iron. It seems to be an article of a most excellent quality, and though higher in price (30*l.* to 33*l.* a ton here), ought to find a large sale on account of its great durability and other merits and the many various purposes for which it can be used. It is made in plain sheets, 2 ft. by 4 ft., its ductility allowing it to be folded or worked in any shape without cracking; it is the best article possible alike for roofing, gutters, water-pipes, cisterns, tanks, railway-trucks, and so on. For roofing it does not want to be corrugated, the edges of the sheets being simply folded over one another in any way thought best or easiest. This circumstance will, of course, save a certain amount in weight as compared with corrugated sheets, besides giving the roof a much nicer appearance, and the durability, so far as the common galvanised corrugated iron is concerned, cannot be compared at all.

**The National Smoke Abatement Institution.**—A meeting in support of this institution was held at the Mansion House last week, when the following resolution was agreed to:—

"That the period has now arrived at which systematic inquiry is desirable into the application of the resources of technical science for the abatement of smoke now largely produced in its industrial processes and in the heating of houses, as well as into the operation of the existing laws for smoke abatement; and that the Council of the National Smoke Abatement Institution be requested to urge upon the Government the desirability of appointing a Royal Commission for the purpose."

**Coslany.**—Plans for the restoration of the Church of St. Michael at Coslany, Norwich, have been accepted at a Vestry meeting. The works will be commenced forthwith from the designs and under the superintendence of Messrs. Oldham, Chambers, & Wilkins, Bank Plain, Norwich. The beautiful flintwork of the Thorp Chapel (well known to all archæologists) is to be continued round the exterior of the chancel.

**Fancy Paper.**—We have received from Messrs. John Walker & Co. some specimens of their crocodile leather note-paper and envelopes and their morocco leather note-paper, with corresponding envelopes. The colours, which are tender and delicate, are varied. The markings on the paper are somewhat strong, but these do not interfere with the passage of the pen over it. The whole is a very successful piece of fancy-work.

**Art Schools.**—You may be glad to hear that two of the suggestions contained in Mr. Stopford's letter upon "Design in Art Schools," published in the *Builder* in May last [p. 723], have been adopted by the Science and Art Department in this year's national competition, viz., giving awards for collective work, and exhibiting elementary works.—H.M.

**Mr. Herkomer's School of Art.**—Mr. Herkomer, A.R.A. (the London correspondent of the *Manchester Guardian* states) has returned from his visit to the United States, and is busily engaged in completing his arrangements for his new school of art, which is to be opened in October, at Bushey. The school is a pet scheme of the artist's, and he has expended no little time and labour upon its arrangements. The students are intended to live at the school, to be free from the distractions of society and London life, and to hold communion with the world of nature, so that their full artistic feelings and powers may be ripened and developed. Hard work is expected from those who join, but ample opportunities are given for recreation and exercise. Mr. Herkomer is a great believer in the Swedish system of gymnastics, and his students will be encouraged in exercises such as these, or in any other form which they may most affect. The school is for both sexes, and a great number of young men and women have already announced their intention of joining.

**A New Hall at Bristol.**—An important work has just been commenced at Bristol, in the addition of premises to the Bristol Young Men's Christian Association and Literary Institute, St. James's-square. Last week the foundation of a new hall was laid. The building will be in the Italian style, and of Cattybrook brick with terra-cotta dressings. It will be so arranged as to accommodate either 1,200 or 1,400 persons sitting, or a couple of thousand standing. The hall will be 97 ft. by 47 ft., and 35 ft. high. There will be four entrances; a commodious orchestra is included in the plans, and an organ has been promised. The cost of the building will be 3,300*l.*, and about 300*l.* or 400*l.* is required to make up the amount. Mr. Joseph Foster, of Redland, is the architect of the building, and Mr. H. J. Rossiter, contractor, of Bedminster, will be the builder.

**Party Walls at Spalding.**—At the last meeting of the Improvement Commissioners, a memorial from Mr. Jepson, architect, signed by about forty builders and house-owners in Spalding, was read, complaining of the by-law now in force, which compels all persons building two or more houses together to erect a party-wall between each to a height of not less than 1 ft. 3 in. above the roof level, so as to be a protection against fire. The memorial stated that the carrying out of such by-law was a matter of considerable extra expense, was no protection against fire, spoiled the appearance of the houses, and kept them continually damp by allowing the rain to penetrate. They asked the Board not to put the law in force. All the members appeared to agree with the memorialists, but as it was not in their power to grant the request made, the clerk was instructed to ask leave of the Local Government Board to do so. All the memorialists have to do is to properly cover with water-proof material the top of the party-wall.

**Large Exportation of Bricks to America.**—The large full-rigged ship Morayshire, of Glasgow, 1,428 tons, left Leith on Monday for Portland, Oregon, direct with 1,485 tons of brick, 360 tons of fire-clay, and 220 tons of cement, being the largest cargo of the kind ever shipped at Leith.—*Journal of Commerce.*

## TENDERS.

For the erection of Leicester-street Schools, for the Leamington School Board. Messrs. G. B. Nichols & Sons, architects, 54, Queen Victoria-street, and Handsworth, Birmingham:—

| | |
|---|---|
| F. & S. Orchard, Banbury | £5,182 0 0 |
| J. Dover, Oxford | 4,650 0 0 |
| G. F. Smith, Milverton | 4,100 0 0 |
| Coleman Bros., Gloucester | 3,898 0 0 |
| D. Ireson, Waterloo | 3,358 0 0 |
| C. A. Horton, Brierley-hill | 3,198 0 0 |
| R. Bowen, Leamington | 3,150 0 0 |
| J. Fell, Leamington (accepted) | 3,100 0 0 |

For the erection of Shrubland-street Schools, for the Leamington School Board. Messrs. G. B. Nichols & Sons, architects:—

| | |
|---|---|
| F. & S. Orchard, Banbury | £3,797 0 0 |
| J. Dover, Oxford | 3,650 0 0 |
| G. F. Smith, Milverton | 3,350 0 0 |
| Coleman Bros., Gloucester | 3,282 0 0 |
| D. Ireson, Waterloo | 3,026 0 0 |
| C. A. Horton, Brierley-hill | 2,940 0 0 |
| F. W. Lee, Leamington | 2,894 4 6 |
| R. Bowen, Leamington | 2,795 0 0 |
| J. Fell, Leamington | 2,750 0 0 |
| T. Bailey, Leamington (accepted) | 2,660 0 0 |

For rebuilding the Salutation and Cat Taverns, Newgate-street and Rose-street, for Mr. E. Liebmann. Messrs. Wylson & Long, architects. Quantities by Mr. A. W. Saville:—

| | |
|---|---|
| * R. & H. Pickersgill | £6,400 0 0 |

* Amended tender (accepted). See *Builder* last week p. 99, for list.

For the erection of a hospital at Gravesend, for contagious diseases, for the Honourable the Corporation of London. Mr. Horace Jones, architect. Quantities by Messrs. William Reddall & Son:—

| | |
|---|---|
| Rayner | £5,154 0 0 |
| Naylor | 4,620 0 0 |
| Blake | 4,500 0 0 |
| Avard | 4,435 0 0 |
| Ashby Bros. | 4,374 0 0 |
| Colls & Sons | 4,242 0 0 |
| Gentry | 4,135 0 0 |
| Morter | 4,075 0 0 |
| Mowlem & Co. | 3,990 0 0 |
| Perry & Co. | 3,900 0 0 |

For repairs to Vestry-hall and offices, St. Matthew, Bethnal-green. Mr. W. H. Gathercole, architect:—

| | |
|---|---|
| J. S. Taylor | £480 0 0! |
| W. & H. Castle | 421 0 0 |
| R. Beeton | 405 0 0 |
| Pryor & Son | 353 11 0 |
| Barber, Lutwyche, & Co. | 352 10 0 |
| Smith & Son | 348 0 0 |
| C. Cooper | 337 0 0 |
| J. Chamberlain & Co. | 337 0 0 |
| Thomerson & Son | 335 0 0 |
| G. Knight | 297 10 0 |
| G. Hawkings (accepted) | 220 0 0! |

For house at Enfield, for Mr. W. Strangman Taylor. Mr. W. Gillbee Scott, architect, 102, Guildford-street, Russell-square:—

| | |
|---|---|
| Gould & Brand | £1,689 0 0 |
| J. Brown, Son, & Blomfield | 1,650 0 0 |
| Mattock Bros. | 1,633 0 0 |
| W. Scrivener & Co. | 1,617 0 0 |
| Harris & Wardrop | 1,592 0 0 |
| L. H. Johnson | 1,560 0 0 |
| Allen Fairhead, Enfield (accepted) | 1,445 0 0 |

For Harden House, Enfield. Mr. W. Gillbee Scott, architect:—

| | |
|---|---|
| J. Brown, Son, & Blomfield | £1,150 0 0 |
| Mattock Bros. | 1,147 0 0 |
| W. Scrivener & Co. | 1,104 0 0 |
| L. H. Johnson | 1,100 0 0 |
| Gould & Brand | 1,095 0 0 |
| Harris & Wardrop | 1,073 0 0 |
| Allen Fairhead, Enfield (accepted) | 1,035 0 0 |

For house on Windmill-hill, Enfield. Mr. C. W. Reeves, architect, 102, Guildford-street, Russell-square:—

| | |
|---|---|
| Gould & Brand | £1,287 0 0 |
| W. Scrivener & Co. | 1,275 0 0 |
| J. Brown, Son, & Blomfield | 1,260 0 0 |
| Mattock Bros. | 1,237 0 0 |
| L. H. Johnson | 1,231 0 0 |
| Allen Fairhead | 1,175 0 0 |
| Harris & Wardrop | 1,173 0 0 |

For building six cottages in Bailey's-lane, Stamford-hill, for Mr. A. Sanders. Mr. Edward Brown, architect, 18, Hanbury-street, Spitalfields:—

| | |
|---|---|
| J. C. Christoffer (accepted) | £963 0 0 |

For repairs at Surrey Tavern, Battersea, for Mr. G. M. Anderson. Mr. Edward Brown, surveyor:—

| | |
|---|---|
| Hobbs | £118 0 0 |
| Gibbins | 107 15 0 |
| Read (accepted) | 106 5 0 |

For alterations at the Walpole Arms, New-cross-road, for Mr. C. Mees. Mr. Edward Brown, architect:—

| | |
|---|---|
| G. W. Beal | £1,666 0 0 |
| C. Marr | 1,660 0 0 |
| Jackson & Todd | 1,646 0 0 |
| S. W. Hawkings | 1,583 0 0 |
| W. Shurmur | 1,575 0 0 |
| Belcher & Ullmer | 1,500 0 0 |
| *Pewterer's Work.* | |
| R. Pringle | £141 0 0 |
| R. Peirce | 133 9 0 |
| W. J. Paddon | 132 0 0 |

For alterations at the Moorgate Tavern, Moorgate-street, for Messrs. Hammond & Bolton. Mr. H. I. Newton, architect:—

| | |
|---|---|
| Minchen | £1,443 0 0 |
| Hewlitt | 1,360 0 0 |
| Oxford | 1,125 0 0 |
| Beale | 998 0 0 |
| Godden (accepted) | 885 0 0 |

For alterations and additions to the Royal George, Carlisle-street, Lambeth, for Mr. Humphreys:—

| | |
|---|---|
| Johnson & Manners | £485 0 0 |
| B. E. Nightingale | 462 0 0 |
| S. Hayworth | 439 0 0 |
| J. Beale | 415 0 0 |
| T. Jennings (accepted) | 338 15 0 |

For cleaning and redecorating the offices of the London Assurance, No. 7, Royal Exchange, for the Corporation. Mr. George Fagg, 8, Old Jewry, architect:—

| | |
|---|---|
| Colls & Son | £616 0 0 |
| Bellham & Son | 595 0 0 |
| Adamson & Sons | 581 0 0 |
| Shaw | 475 0 0 |

For new tramp-wards, Berkhamstead. Quantities not supplied:—

| | |
|---|---|
| Austen | £628 0 0 |
| Honour | 505 0 0 |
| Monk | 500 0 0 |
| Nash | 490 0 0 |
| Fincher (accepted) | 456 0 0 |

For new premises, 101A, White Lion-street, Islington, for Mr. F. C. Frye:—

| | |
|---|---|
| Hook | £535 0 0 |
| Woodbridge | 506 7 0 |

For pulling down and re-building women's oakum-shed at the Workhouse, Princes-street, Old Gravel-lane, for the Guardians of the parish of St. George-in-the-East, Middlesex. Messrs. A. & C. Harston, architects, 15, Leadenhall-street, E.C.:—

| | |
|---|---|
| W. & H. Castle | £365 0 0 |
| Moyle & Son | 350 0 0 |
| Palmer & Son, Old Gravel-lane (accepted) | 272 0 0 |

Results of Tenders to School Board:—

| | Croggon. | Braby. | Oldrey. | Jerrard. | Humphrey. | Hemming. |
|---|---|---|---|---|---|---|
| | £. s. | £. s. | £. | £. | £. | £. s. |
| Pratt-road | 997 10 | 948 0 | 835 | 800 | 816 | 742 10 |
| Parsons-green | 997 10 | 915 0 | 815 | 780 | 816 | 726 10 |
| Mantle-street | 997 10 | 495 0 | 445 | 431 | 370 | 394 10 |
| St. Andrew-st. | 997 10 | 933 0 | 834 | 790 | 816 | 731 10 |
| Dennett-grove | 855 0 | 740 0 | 661 | 655 | 480 | 750 0 |
| Plough-lane | 997 10 | 920 0 | 806 | 779 | 816 | 721 10 |
| Detmar-road | 997 10 | 939 0 | 831 | 797 | 816 | 739 10 |
| Ackmar-road | 997 10 | 943 0 | 828 | 795 | 816 | 737 10 |
| Coburg-road | 998 0 | 997 10 | 870 | 819 | 816 | 747 10 |
| Surrey-mews | 997 10 | 922 0 | 816 | 780 | 816 | 728 10 |
| Grange-road | 997 10 | 928 0 | 823 | 787 | 816 | 740 10 |

For alterations and additions in forming flats, at South Hornsey, for Mr. Charles Tomkins. Mr. G. Sherrin, architect:—

S. J. Scott (accepted).

For repairs at the Railway Ale Stores, Camden-town, for Mr. J. Ellesworth. Mr. Edward Brown, surveyor:—

Smith (accepted).

For additions and alterations to Trowse Schools, near Norwich, for Messrs. J. & J. Colman. Mr. Edward Boardman, architect, Norwich:—

| | |
|---|---|
| G. E. Hawes | £1,528 0 0 |
| Downing & Son | 1,500 0 0 |
| J. Youngs | 1,399 0 0 |
| R. Daws | 1,394 0 0 |
| Wilkin & Wilkins (accepted) | 1,370 0 0 |

For additions to shop in Rampant Horse-street, Norwich, for Messrs. Curl Bros. Mr. Edward Boardman, architect:—

| | |
|---|---|
| J. Youngs (accepted) | £500 0 0 |

For new front and alterations at No. 16, Commercial-street, Hereford, for Mr. C. W. Slatter. Mr. W. W. Robinson, architect, King-street, Hereford:—

| | |
|---|---|
| H. Welsh, Hereford | £950 0 0 |
| Beavan & Hodges, Hereford | 580 0 0 |
| Pensom, Hereford | 550 0 0 |
| Pritchard, Hereford | 533 0 0 |
| W. Cullis, Hereford (accepted) | 495 0 0 |

For small house at the Aërated Waterworks, Hereford, for Messrs. Davies & Co. Mr. W. W. Robinson, architect, King-street, Hereford:—

| | |
|---|---|
| H. Welsh, Hereford | £689 0 0 |
| J. Rowberry, Hereford | 550 0 0 |
| J. Ford, Hereford | 540 0 0 |
| J. Watkins, Hereford | 523 0 0 |
| T. Lewis, Hereford | 495 0 0 |
| W. Pritchard, Hereford | 490 0 0 |
| W. Bowers & Co., Hereford (accepted) | 470 0 0 |

For additions to Royal Oak Inn, Milnthorpe, for Mr. Wm. Hodgson. Mr. John Stalker, architect, Kendal. Quantities by the architect:—

| | |
|---|---|
| *Masons' Work (labour only).* | |
| T. Poole, Carnforth | £83 0 0 |
| *Joiners' Work.* | |
| Atkinson, Arnside | 89 15 0 |
| *Plumbing, Painting, and Glazing.* | |
| John Thompson, Milnthorpe | 29 15 0 |
| *Slating and Plastering.* | |
| T. Howarth, Carnforth | 40 10 3 |

For extra works, Havelock House, Hill-brow Estate, East Liss, Hants, for Mr. Geo. Wright. Mr. Mark H. Judge, architect:—

| | |
|---|---|
| Andrews (accepted) | £358 1 0 |

For the erection of dwelling-house, workshops at rear, and sundry works, at 1a, John-street, London Fields. Mr. S. C. Capes, architect. No quantities:—

| | |
|---|---|
| Smyrden | £812 0 0 |
| Thomerson & Son | 644 0 0 |
| Millwood | 530 0 0 |

For the erection of dwelling-houses and shops in Old Bethnal Green-road, for Mr. Ramsey. Mr. A. C. H. Watkins, architect. Quantities supplied:—

| | |
|---|---|
| Lister & Co. | £3,480 0 0 |
| Shurmur | 2,750 0 0 |
| Marr | 2,700 0 0 |
| Holland | 2,601 9 10 |
| Jackson & Todd | 2,595 0 0 |
| Forrest | 2,586 0 0 |
| Thomerson & Son | 2,545 0 0 |
| Johnson | 2,491 0 0 |
| Beale | 2,365 0 0 |

For industrial dwellings, White Horse-alley, Cow Cross-street, Smithfield, for Mr. F. Statham Hobson. Mr. R. E. Tyler, architect. Quantities by Mr. Walter Barnett:—

| | |
|---|---|
| L. H. & R. Roberts | £1,973 0 0 |
| E. Stafford | 1,897 0 0 |
| W. Shurmur | 1,782 0 0 |
| G. Phillips | 1,671 0 0 |
| Burch & Moor | 1,617 0 0 |
| Scharien & Williams | 1,583 0 0 |
| Jackson & Todd | 1,550 0 0 |

For painting and re-decorating the Metropolitan Tabernacle, for Rev. C. H. Spurgeon. Mr. F. Gough, architect, 33, Alderney-street:—

| | |
|---|---|
| Dove Bros., Islington | £1,398 0 0 |
| Colls & Son, Camberwell | 1,379 0 0 |
| Bywaters | 1,250 0 0 |
| J. Smith & Sons, Norwood | 1,143 0 0 |
| McLachlan | 1,085 0 0 |
| W. Johnson, Wandsworth Common | 1,070 0 0 |

For alterations and additions to No. 75, High-street, Peckham, for Mr. T. Binstead. Mr. Walter Davis, architect:—

| | |
|---|---|
| C. Devereux (accepted) | £240 0 0 |

For building a pair of houses at Hampstead. Mr. E. J. May, architect, 14, Hart-street, Bloomsbury:—

| | |
|---|---|
| T. H. Adamson & Sons (accepted) | £3,995 0 0 |

For the erection of a mission-house at Putney, for the vicar and churchwardens of the Parish of St. Mary, Putney:—

| | |
|---|---|
| B. Stone, Chelsea | £1,230 0 0 |
| G. Picton, Kennington | 1,192 8 0 |
| Johnson & Co., City | 1,050 0 0 |
| F. Pain, Putney (accepted) | 987 0 0 |
| Harris & Wardrop, Limehouse | 856 0 0 |

For factory, Gervase-street, Old Kent-road, for Mr. F. Stocks. Mr. W. H. Scrymgour, architect, 50, Lincoln's Inn-fields. Quantities by the architect:—

| | |
|---|---|
| W. Watson | £1,390 0 0 |
| W. Shepherd | 1,350 0 0 |
| Janglis & Pinkham | 1,340 0 0 |
| J. Anley | 1,310 0 0 |

For alterations and additions at 63, Sydney-street, Chelsea. Mr. W. H. Collbran, architect:—

| | |
|---|---|
| H. Smith | £470 0 0 |
| H. Toten & Sons | 470 0 0 |
| Styles & Holdstock (accepted) | 449 0 0 |

For alterations and repairs to The Roebuck, Salisbury, for Messrs. Eldridge, Pope, & Co. Messrs. Kemp-Welch & Pinder, architects, Bournemouth:—

| | |
|---|---|
| G. Harris, Salisbury | £497 10 0 |
| P. Tryhorn, Salisbury (accepted) | 489 10 0 |

For East Molesey Church enlargement. Mr. Charles Barry, architect:—

| | New Nave. | New Aisle. | Vestry. |
|---|---|---|---|
| Perry & Co. | £2,380 | 1,645 | 472 |
| Dove Bros. | 2,254 | £1,575 | £455 |
| Wheatley | 1,707 | 1,203 | 333 |
| Lea & Co. | 1,459 | 1,033 | 382 |

For the erection of schools at the East End, Finchley, for the Finchley School Board. Messrs. Dunk & Geden, architects. Quantities by Mr. W. B. Brown:—

| | |
|---|---|
| Priestley & Gurney | £8,880 0 0 |
| Jones & Co. | 8,428 0 0 |
| Adcock | 8,404 3 8 |
| Steel Bros. | 8,345 14 0 |
| Downs | 8,222 0 0 |
| Outhwaite & Son | 8,176 0 0 |
| Julian & Co. | 8,126 0 0 |
| Johnson | 8,095 0 0 |
| Yardley & Sons | 7,910 5 0 |
| Scrivener & Co. | 7,894 0 0 |
| Shurmur | 7,749 0 0 |
| Wall | 7,628 0 0 |
| Grover | 7,528 0 0 |
| Oldrey | 7,519 0 0 |
| Sargeant | 7,448 0 0 |
| Brass | 7,424 0 0 |
| E. Lawrance | 7,132 0 0 |

For the erection of schools at the North End, Finchley, for the Finchley School Board. Messrs. Dunk & Geden, architects. Quantities by Mr. W. B. Brown:—

| | |
|---|---|
| Priestley & Gurney | £9,462 0 0 |
| Steel Bros. | 8,847 5 0 |
| Jones & Co. | 8,668 0 0 |
| Adcock | 8,502 19 7 |
| Outhwaite & Son | 8,471 0 0 |
| Downs | 8,455 0 0 |
| Julian & Co. | 8,313 0 0 |
| Johnson | 8,275 0 0 |
| Yardley & Sons | 8,182 1 6 |
| Scrivener & Co. | 8,112 0 0 |
| Shurmur | 7,884 0 0 |
| Wall | 7,871 0 0 |
| Oldrey | 7,737 0 0 |
| Grover | 7,722 0 0 |
| Sargeant | 7,708 0 0 |
| Brass | 7,700 0 0 |
| E. Lawrance | 7,312 0 0 |

For the erection and completion of a factory, with offices, bleach-works, dye-works, stables, cottages, &c., at Daybrook, Nottingham, for Messrs. Jacoby & Co. Mr. Herbert Walker, architect, Nottingham. Quantities by the architect:—

| | |
|---|---|
| Dennett & Ingle, Nottingham | £21,530 0 0 |
| Bains & Turton, Basford | 21,080 0 0 |
| Hopewell & Sons, Basford | 20,981 18 0 |
| Bell & Son, Nottingham | 20,897 0 0 |
| Wheatley & Maule, Nottingham | 20,650 0 0 |
| F. Messom, Nottingham | 20,591 0 0 |
| Fisher, Hutchinson, & Ashling, Nottingham | 20,550 0 0 |
| H. Vickers, Nottingham | 20,005 0 0 |
| Fish & Son, Nottingham | 20,000 0 0 |
| Lynam & Kidd, Nottingham | 19,954 8 7 |
| E. Hind, Nottingham (accepted) | 19,193 0 0 |
| *Ironwork.* | |
| Goddard & Massey, Nottingham | £1,705 0 0 |
| Meadow Foundry Co., Mansfield | 1,626 19 0 |
| Langley Mill Engineering Co. | 1,505 8 11 |
| Richards & Son, Leicester (accepted) | 1,385 0 0 |

For St. James's Church and Hall, Stanstead-road, Forest-hill. Mr. James Tolley, architect. Quantities supplied by Mr. W. Birdseye:—

| | Church. | Hall. |
|---|---|---|
| J. & C. Bowyer | £6,250 0 0 | £3,500 0 0 |
| J. W. Falkner | 6,087 0 0 | 3,587 0 0 |
| G. H. & A. Bywaters | 6,050 0 0 | 3,545 0 0 |
| Lathey Bros. | 6,100 0 0 | 3,490 0 0 |
| Clarke & Bracey | 6,000 0 0 | 3,557 0 0 |
| S. J. Jerrard | 5,989 0 0 | 3,479 0 0 |
| Higgs & Hill | 5,934 0 0 | 3,520 0 0 |
| Wall Bros. | 6,000 0 0 | 3,450 0 0 |
| T. Boyce | 5,850 0 0 | 3,500 0 0 |
| Dove Bros. | 5,895 0 0 | 3,375 0 0 |
| R. Conder | 5,730 0 0 | 3,420 0 0 |
| T. Jones | 5,595 17 5 | 3,353 17 2 |
| W. Marriage | 5,430 0 0 | 3,440 0 0 |
| A. Deards | 5,440 0 0 | 3,352 0 0 |
| J. M. Macey & Sons | 5,363 0 0 | 3,349 0 0 |

For additions to "The Canaries," Bedford Park, Chiswick. Mr. E. J. May, architect:—

| | |
|---|---|
| T. H. Adamson & Sons (accepted) | £1,293 0 0 |

For villa residence, Cheam, Surrey, for Mr. S. C. Wylde. Messrs. Taylor & Locke, architect. Quantities supplied:—

| | |
|---|---|
| R. Keal, Sutton | £1,575 0 0 |
| Potter, Sutton | 1,500 0 0 |
| D. Stewart, Wallington | 1,357 0 0 |
| J. Arney, Sutton | 1,285 0 0 |
| Howe & White, Wallington | 1,280 0 0 |

For erecting printing-shops and photographic rooms, and partly rebuilding residence destroyed by fire at Hanover-street, Peckham, for Mr. Griggs. Mr. Collings B. Young, architect. Quantities by Messrs. Beesley & Williams, 5, Westminster-chambers, Victoria-street:—

| | | | |
|---|---|---|---|
| Payne | £2,157 | 0 | 0 |
| Patman & Fotheringham | 2,013 | 0 | 0 |
| Pack Bros. | 1,893 | 0 | 0 |
| Balding | 1,820 | 0 | 0 |
| G. F. Williams | 1,789 | 0 | 0 |
| Holliday & Greenwood | 1,759 | 0 | 0 |
| Scharien & Williams | 1,663 | 0 | 0 |
| Heath | 1,628 | 0 | 0 |
| Stiling | 1,599 | 0 | 0 |

For new shop and premises for Mr. Wellbeloved, High-street, Deptford. Mr. John Jas. Downes, architect:—

| | | | |
|---|---|---|---|
| Hall | £1,670 | 0 | 0 |
| Lordon & Son | 1,260 | 0 | 0 |
| Redman | 1,225 | 0 | 0 |
| H. L. Holloway (accepted) | 1,190 | 0 | 0 |

For alterations to 236, Commercial-road, Portsmouth, for Mr. A. Stedall. Mr. George Edwards, architect:—

| | | | |
|---|---|---|---|
| Sage | £600 | 0 | 0 |
| Stimpson & Co. | 458 | 0 | 0 |
| Green | 435 | 0 | 0 |
| Scharien & Williams | 434 | 0 | 0 |
| Light | 380 | 0 | 0 |
| White (accepted) | 359 | 0 | 0 |

For completing 5 & 7, Tournay-road, Walham-green, for the Middlesex Land Company (Limited). Mr. George Edwards, architect:—

| | | | |
|---|---|---|---|
| Green (accepted) | £417 | 0 | 0 |

For alterations to 124, Brompton-road, for the Albion Bakery Company (Limited). Mr. George Edwards, architect:—

Scharien & Williams (accepted).

For alterations to the Theatre Royal, Gravesend, for "General" Booth. Plan and quantities from the Surveyor's Department, 101, Queen Victoria-street. Mr. E. J. Sherwood, commissioner for works:—

| | | | |
|---|---|---|---|
| Dunford & Griffin, Poole | £400 | 0 | 0 |
| W. Archer, Gravesend (accepted) | 390 | 0 | 0 |

For new buildings, High-street, Battersea, for "General" Booth. Plan and quantities supplied from the Surveyor's Department, 101, Queen Victoria-street. Mr. E. J. Sherwood, commissioner for works:—

| | | | |
|---|---|---|---|
| G. Green, Hackney | £1,720 | 0 | 0 |
| W. Shurmur, Clapton | 1,647 | 0 | 0 |
| Turtle & Appleton, Wandsworth | 1,635 | 0 | 0 |
| J. M. Macey & Sons, Battersea | 1,448 | 0 | 0 |
| Dunford & Griffin, Poole | 1,437 | 0 | 0 |

For the erection of a detached residence at Walthamstow, for Mr. A. Reed. Mr. G. E. Law, architect. Quantities by Messrs. Beesley & Williams, 5, Westminster Chambers, Victoria-street:—

| | | | |
|---|---|---|---|
| Greaves (accepted) | £1,122 | 0 | 0 |

For public baths and washouses, Whitehaven. Mr. T. Lewis Banks, architect. Quantities by Mr. J. Sergeant, Grosvenor Chambers, Grosvenor-gardens:—

*Builders' Work.*

| | | | |
|---|---|---|---|
| Glaister | £5,281 | 0 | 0 |
| Cousins | 5,273 | 16 | 0 |
| Elbeck & Co. | 5,114 | 0 | 0 |
| Christopherson | 4,540 | 0 | 0 |
| McAdam, Whitehaven (accepted) | 4,358 | 14 | 0 |

*Engineers' Work.*

| | | | |
|---|---|---|---|
| Bushby, London | 1,436 | 0 | 0 |
| Bradford, Manchester | 1,315 | 0 | 0 |
| Corbett, Carlisle | 1,310 | 0 | 0 |
| Cockburn, Glasgow (accepted) | 1,305 | 0 | 0 |

For Congregational Church, Upton, Essex. Messrs. T. L. Banks & Townsend, architects. Quantities by Mr. J. Sergeant:—

| | | | |
|---|---|---|---|
| Higgs & Hill | £6,884 | 0 | 0 |
| Hunt | 6,560 | 0 | 0 |
| Bangs | 6,556 | 0 | 0 |
| Morter | 6,469 | 0 | 0 |
| Hack | 6,347 | 0 | 0 |
| Hoskins | 6,527 | 0 | 0 |
| Downs | 6,200 | 0 | 0 |
| Patman & Fotheringham | 6,073 | 0 | 0 |
| Gentry | 5,775 | 0 | 0 |
| Gregar | 5,530 | 0 | 0 |
| Sharpe, Stamford-hill | 5,440 | 0 | 0 |

For houses and stables, Hemel Hempstead. Messrs. T. L. Banks & Townsend, architects. Quantities by Mr. J. Sergeant:—

G. & J. Waterman, St. Alban's (accepted).

For alterations and additions to premises, Nos. 71, 73, 77, 79, 81, 83, and 85, High-street, Peckham. Mr. Benjamin Elson, architect, 115, Long-acre:—

| | | | |
|---|---|---|---|
| Toms | £3,890 | 0 | 0 |
| Anley | 3,870 | 0 | 0 |
| Langmead & Way | 3,775 | 0 | 0 |
| Haycock | 2,954 | 0 | 0 |
| C. Devereux (accepted) | 2,857 | 0 | 0 |

For a new warehouse, and alterations at No. 193, Lewisham High-road, for Messrs. Haycraft. Mr. W. T. Hunt, jun., architect:—

| | | | |
|---|---|---|---|
| Rodwell | £490 | 0 | 0 |
| Redman | 487 | 10 | 0 |
| A. & F. Smith | 410 | 0 | 0 |
| Holloway | 398 | 0 | 0 |
| G. Hall | 389 | 0 | 0 |
| Best | 379 | 0 | 0 |

For alterations and repairs at Nos. 42 & 43, High-street, Marylebone, for Mr. W. Jarred. Mr. C. Bradley, architect:—

| | | | |
|---|---|---|---|
| Longmire & Burge | £1,390 | 0 | 0 |
| F. Mark | 1,340 | 0 | 0 |
| J. Simpson | 1,330 | 0 | 0 |

For rebuilding warehouse, Lower Phœnix Wharf, Ratcliff. Mr. Joseph Harris, architect:—

Mr. J. Croft (accepted at schedule of prices.)

*St. Mary Magdalen Church, Bermondsey.*—In list of tenders for alterations, &c., to the above church, for "Fullar," read "J. Bullers."

## TO CORRESPONDENTS.

K. W. & P.—T. H. A. & Son.—H. H. L.—J. B.—T. B.—E. P.—C. D.—M. & Co.—R. P.—A. S.—C. R. S.—J. C. M.—J. S.—E. B.—D. M. H.—J. S.—D. R. & Co.—C. T.—R. W.—G. M.—J. A.—D. M.—W. H. S.—S. & H.—G. M.—F. M.—C. R. G.—W. H. P.—W. R.—W. R. & Son.—H. J. N.—S. & H.—G. F.—H. M.—T. J.—W. R.—W. H. G.—R. & H. P.—S. & W.—J. C. H.—E. J. S.—H. L. H.—G. D. & Son.—F. M.—S. G. J. (thanks).—F. E. (declined with thanks).—M. (no).—Ironmonger (we must decline advertising, excepting in the ordinary way, every inventor who has "a first-rate stove").—R. S. T. (will appear).—E. H. L. B. (next week).—E. S. (we have received more letters this week than would fill the *Builder* twice. All in good time).—J. W. (not received).

Correspondents should address the Editor, and *not* the Publisher except in cases of business.

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

We are compelled to decline pointing out books and giving addresses.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors

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THE INDEX and TITLE-PAGE for Volume XLIV. (January to June, 1883) were given as a Supplement with the Number of July 14.

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Addressed to No. 46, Catherine street, W.C.

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